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THE PC NEWS WEEKLY

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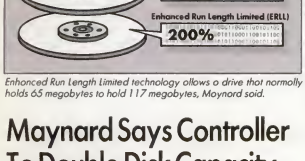

Enhonced Run Length Limited technology allows a drive that normally holds 65 megobytes to hold 117 megobytes, Moynard soid.

Maynard Says Controller To Double Disk Capacity

By Charles Bermant

CASSELBERRY, FL — Maynard Electronics will ship in December a hard disk controller card that the company said will double the capacity of hard disk drives from a variety of manufacturers.

The controller is based on Enhanced Run Length Limited (ERLL) technology, which divides a disk into 33 sectors instead of the usual 17 sectors. Thus, using ERLL, a drive that normally holds 65 megabytes can hold 117 megabytes, according to Maynard's director of marketing and sales, Rob Wight.

The process also increases drive performance, raising the data transfer rate from 5 to 9 megabits per second, according to Wight. This improves average access time because the disk drive's recording head moves half as far to read the same amount of data, Wight said. The physical speed of the drive's mechanical parts is not affected, he added.

The ERLL controller card

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Lotus' Freelance Plus graphics progrom con now create charts (such as the one pictured here) on its own rather than relying on ones produced by 1-2-3. See story on page 5.

Convergent Plans 386 Workstation; Zenith Readies 386-Based Z-348 PC

CTOS to Run DOS, Unix Simultaneously

By Tom Moran

SAN JOSE, CA — Convergent Technologies Inc. said it will unveil next week a 386-based workstation using a version of its proprietary CTOS operating system that will simultaneously run DOS and Unix.

An Intel official said Intel will showcase 386-based products from several companies on November 11 at Comdex and confirmed that Convergent would demonstrate a 386-based NGEN workstation running Unix, DOS, and a 32-bit version of CTOS simultaneously.

"Because of nifty features in the 386, [the new CTOS] runs multiple operating systems simultaneously," said the Intel representative. "It's the first to exploit the 32-bit features and the multitasking aspects. And it's the first 386-based machine to truly merge application bases from multiple operating systems."

One industry source said that Convergent's operating system will allow multiple DOS applications to run at the same time, permitting users to "start four different copies of Lotus up simultaneously."

A spokeswoman at Convergent confirmed the company will co-announce with Intel Corp. 386-based products, including a new member of its NGEN series of clustered workstations and a 386-based operating system.

Continued on Page 8

Company Says Machine Runs Faster by 40%

By Scott Mace

GLENVIEW, IL — Zenith Data Systems said it will announce its first 80386-based PC at the Comdex show in Las Vegas.

The new PC, tentatively named the Z-348, will contain a zero-wait-state 80386 processor running at 16 MHz, allowing speed improvements of up to 40 percent over the 80286-based Z-248, said a company spokesman, who asked not to be identified. Like the Compaq Deskpro 386, the Z-348 contains a 32-bit memory bus with access to high-speed 32-bit static RAM. The minimum memory available will be 1 megabyte of RAM, he said.

The Z-348 is expected to use enhanced page-mode RAM to accelerate memory access, a method similar to what the Compaq 386 does, according to James Magid, senior vice president at L.F. Rothschild, Unterberg & Towbin, a financial research and investment company in New York.

"Zenith's new machine will be similar to Compaq's, but there may be some surprises," Magid said. He expects Zenith to announce that an EGA board will be standard equipment with the 286 and 386 computers.

The Z-348 will contain a paging controller to perform

Continued on Page 8

AT&T to Continue to Service Olivetti-Made Line of 6300s

By Edward Warner

NEW YORK — AT&T announced last week it has transferred all of its future personal computer development and manufacturing to Italy's Ing. C. Olivetti & Co., but it said the move will have little effect on users because the company will continue to sell and service its personal computer line.

AT&T spokesman Barry Campbell said the company took the action in order to focus more effort on networking, but added, "We're committed to the PC [line] as the PCs are part of our overall strategy of providing data networking."

Olivetti makes the AT&T 6300 and 6300 Plus, two IBM PC compatibles that received positive reviews from users such as Thomas F. O'Leary, director of MIS technology at New York-based North American Philips Corp. Olivetti has a good reputation, and if its future products are as good as the 6300, his company will buy them, O'Leary said. Nonetheless, O'Leary expressed concern that the decision indicates "AT&T is struggling and does not know what to do" about the personal computer market.

At the Big Eight accounting firm of Coopers & Lybrand, AT&T 6300s constitute two-thirds of the company's 300 personal computers. Virginia Talamo, manager of the Computer Audit Assistance Group, said she was neither surprised nor concerned about AT&T's move since she has known for some time that Olivetti makes the 6300.

"If AT&T is going to con-

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AT DEADLINE

Multitech to Introduce $4,000 386 at Comdex

What may be the least expensive 80386-based system to be introduced at Comdex is a $3,995 machine from Multitech Electronics Inc. of Sunnyvale, California, according to Multitech marketing manager James Wong.

The Multitech 1100 will will run at 16 MHz and come standard with 1 megabyte of memory, a 40-megabyte hard disk, a single 1.2-megabyte floppy disk drive, an AT-style keyboard, and eight expansion slots, including one dedicated 32-bit memory bus. Multitech will sell two other 80386 models with 80-megabyte and 130-megabyte hard disks for $5,995 and $6,495, respectively, which

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NEWSPAPER

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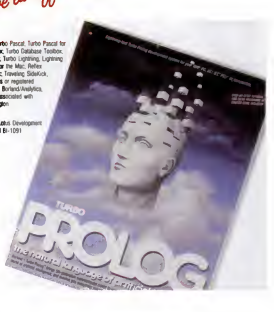

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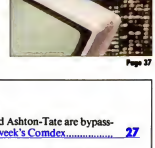

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AT DEADLINE

the firm sees primarily for use as file servers in LANs.

Also being introduced at Comdex is the D3000 80386-based workstation from MAD Intelligent Systems Inc. of San Jose, California, which also includes the Intel 82786 graphics chip.

— Patrick Waurzyniak and Hank Bannister

Token Ring Product to Link PCs to Minis

Bridge Communications of Mountain View, California, last week unveiled a product that the company said will allow IBM PCs on the IBM Token Ring and compatible networks to connect directly to minicomputers. Called Tokenterm, the software product directly links PCs on the network to any minicomputer with an asynchronous interface. Bridge said, making a communications server unnecessary. Tokenterm will cost $300 per PC and will be formally introduced at the Localnet conference in San Francisco, November 18 to 20. The product will be available to customers in December, said Bridge.

— Laurie Flynn

Lifetree Unveils 1-2-3 Compatible Program

Lifetree Software of Monterey, California, publishers of Volkswriter, last week announced Words & Figures, containing a Lotus 1-2-3, Version 1A-compatible spreadsheet and an integrated word processor. The word processing feature can be toggled with the spreadsheet, or both environments can be displayed on a split screen. Words & Figures also adds some 1-2-3, Release 2.0 capabilities, such as support of hidden cells, column widths greater than 72, the Lotus-Intel-Microsoft EMS, and 8087 and 80287 math coprocessors. As in 2.0, users can transpose a range or convert a range of formulas to values. Words & Figures, priced at $195, is not copy-protected and is available immediately.

— PJ Schemenaur

QMS to Introduce Laser Printer at Comdex

QMS Inc. plans to introduce at Comdex the PS 800 Plus, a new Postscript laser printer designed to compete with the Apple Laserwriter Plus, said the company. The printer, an upgraded version of the firm's existing PS 800 printer, adds 22 fonts, identically matching the font offering of the Laserwriter Plus, QMS said. Although pricing was not firmly set, QMS expects to price the printer at $5,495. The company said the price of the PS 800 would likely be cut to $4,995 in response to Apple's recent price cut on the Laserwriter. The company also plans to introduce a new member to its Kiss family of printers that will have added memory and features. The firm will not show the color laser printer it is working on but will give a status report on its development.

— Karen Sorensen

HP Plans Integrated Publishing System

Hewlett-Packard announced last week it will offer an integrated desktop publishing system based on its Vectra PC AT compatible. HP claimed the system can save users between $300 and $500, compared to buying the components piece by piece. As expected, the HP Vectra Publisher PC system will incorporate the Vectra PC, Aldus' Pagemaker for the PC, a mouse, HP's Vectra version of Microsoft Windows, and HP's EGA board and monitor or new Hercules-compatible Monochrome Plus adapter and monitor. The system is scheduled to ship by January 1, according to Tom Imbocchi, an HP Vectra product manager. The monochrome version of the system will be priced under $6,200; the EGA version will cost less than $7,100, he said.

HP also announced a $2,495 2-megabyte upgrade board for the Laserjet printer that allows the machine to produce a full page of graphics at a resolution of 300 dpi. The board will be available by mid-December. Currently, the maximum graphics capability obtainable is a half page at 300 dpi with the Laserjet Plus.

— Karen Sorensen

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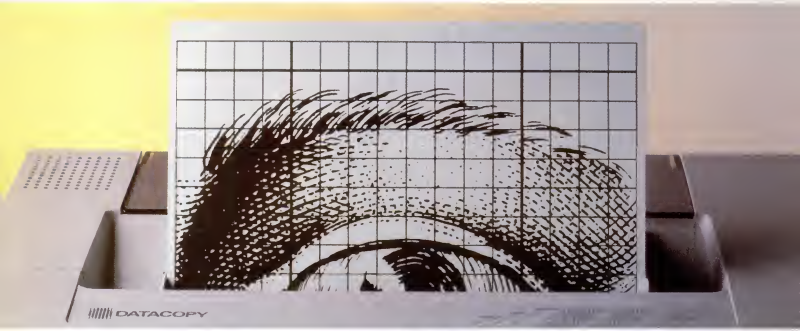

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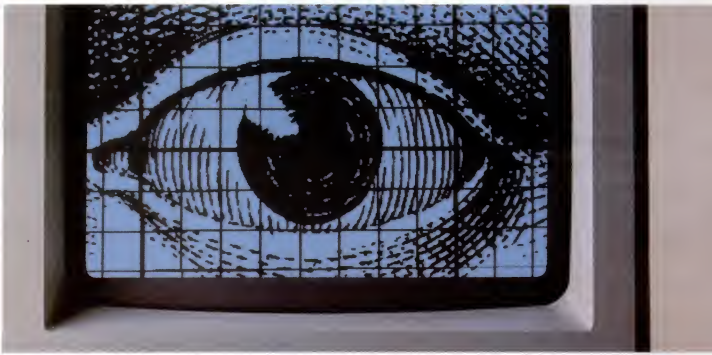

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Plus Says It Expects Patent On Hard Disk-on-Card Concept

Competitors Say Idea Not Patentable

By Charles Bermant

MILPITAS, CA — Plus Development Corp. said it has received notice that it will be awarded a patent on its year-old Hardcard that the company claims would give it the exclusive rights to the technology of putting a hard disk on a PC expansion card.

"The patent pertains to the fixed disk expansion board product and its use in the IBM PC environment," said company counsel David B. Harrison of San Mateo, California. He said Plus had not determined what legal strategy it would employ to enforce its patent rights.

Although the patent has not yet been officially granted, its impact on the hard disk card market is already being debated by Plus, its competitors, analysts, and attorneys. Some said it could introduce turmoil and costly legal challenges into the industry, which comprises 30 vendors with $200 million in annual revenues. But others, notably competitors, said they would virtually ignore the action in the belief that such a patent would be so broad that Plus could not enforce it.

Plus said it believes it will be granted a form-factor patent within nine weeks. But the U.S. Patent and Trademark Office, which issues patents, refused to comment, saying information on patents is confidential until they are issued and the patent fee is paid. William O. Craig, director of public affairs for the patent office in Arlington, Virginia, would neither confirm nor deny Plus' assertions.

One analyst predicted a flurry of activity if the patent is granted as Plus interprets it.

"It will have a huge impact if the actual concept is patented," said Ian Warhaftig, an analyst for the International Data Group of Framingham, Massachusetts, who believes that the awarding of the patent would have no immediate effect on prices. "There would be a legal challenge, especially from a company that has a significant market share."

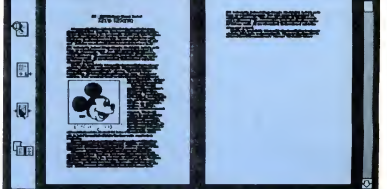
If Harrison's interpretation of the patent is correct, it would mean that every competing product currently on the market could represent a potential infringement, said Patty Johnston, a patent attorney at Howard, Rice, Nemerovski, Canady, Robertson and Falk, in San Francisco.

Johnston said once such a patent is granted, the company can selectively approach any and all competitors and demand a certain amount per device sold. Competitors can then deny the infringement or challenge the patent itself.

Several competitors said they feel the concept of a hard disk on a card is not patentable and that the patent will only cover the Hardcard's head disk assembly.

"The Plus card seems too nonspecific to be patentable," said Rob Wight, director of marketing and sales for Maynard Electronics, in Casselberry, Florida. "We tried to patent a portable hard drive, but it was denied because it was too generic. If that wasn't patentable, then I don't think a hard disk on a card would be."

Maynard's Wight said that if the idea is the subject of the patent, competitors will have three choices: Fight it in court, discontinue their product, or pay the licensing fee. "Those three options are going to be contemplated by all of us," he said. "We'll have to consult our attorneys and check the sales volumes and what arrangement Plus will offer before making a decision."



The Page Preview feature of Microsoft Word for the Macintosh, Version 3.0 allows the user to view one or two pages of a document exactly as they will print, the firm said.

Microsoft Unveils Version 3.0 Of 'Word for the Macintosh'

By Eric Lach

NEW YORK — Microsoft Corp. last week unveiled Version 3.0 of Microsoft Word for the Macintosh, which it said is the first Macintosh application to support Document Content Architecture (DCA). DCA makes it easier for Macintosh users to move text files to other systems, including IBM mainframe systems, the company said.

A utility within Microsoft Word converts Macintosh text documents to the DCA format, which then allows them to be moved over a hardware link to IBM mainframes, minicomputers, and PCs. The documents can then be converted back into text files within word processors that support DCA, said Jonathan Prusky, the program's product manager.

Microsoft's decision to offer a DCA conversion utility on the Macintosh version of Word solves only half of the problem of linking Macintosh and PC machines so that they can exchange text files, according to Prusky. "The software is only part of it," he said. "Hardware is the rest, and you have to have both."

Prusky said that Version 3.0 will run on Tops, a package from Centram Systems West Inc. of Berkeley, California, that permits file sharing between Macintoshes and IBM PCs. Hardware solutions include Ethernet network products from 3Com and others, he said.

Not all observers believe the DCA feature will be the strongest selling point of the new version. Richard Webb, who is in charge of Macintosh support for Peat, Marwick, Mitchell & Co., said he thinks Microsoft Word's other new features will motivate the company's Mac users to upgrade.

Among the new features of the program are an integrated outliner, spelling checker, "style sheets" that allow the formatting of whole documents, page preview, index and table of contents generation, hidden text, "short menus" for novices, and "full menus" for advanced users. Version 3.0 of Microsoft Word for the Macintosh can also automatically exchange data with Macwrite, Microsoft Works, and the MS-DOS version of Microsoft Word and support Aldus' Pagemaker, the company said.

Scheduled to ship in January, Version 3.0 carries a price tag of $395.

Freelance Plus Includes Ability To Make Charts

By Edward Warner

CAMBRIDGE, MA — Lotus Development Corp. will announce today its first major upgrade to the Freelance graphics program, giving it the ability to create charts on its own rather than use those produced by 1-2-3.

In addition to chart creation, Freelance Plus can create graphics from data files imported from 1-2-3, Symphony, Dbase II, and Dbase III, as well as standard ASCII files. It can export files into the Lotus Manuscript word processor and into such desktop publishing programs as Front Page from Studio Software Corp. of Irvine, California, according to Lotus.

Freelance Plus will cost $495, $100 more than the original Freelance package. Registered users can pay $100 to upgrade to the new version of Freelance, which will ship in November. Lotus said it will discontinue its Graphwriter business graphics line in favor of Freelance, except for the high-end Combination Set, which was reduced in price from $595 to $495.

Freelance Plus incorporates all of the features of the previous version, including chart editing and a library of symbols for use in making its charts more attractive, according to Dave Tarrant, manager of the Lotus graphics products group.

Other new features include the addition of 150 symbols to its symbol library and the ability to create text charts and to fill charts and shapes with varying patterns of gray. Freelance Plus runs on the PC line with a minimum of 384K of memory and a CGA, EGA, or Hercules Graphics adapter.

Also announced was Freelance Maps, a collection of software maps for use with Freelance Plus. The maps — sold in sets of countries, United States counties, United States cities, and ZIP codes — are $145 per set or $395 for the collection of sets.

Lotus acquired Freelance earlier this year when it purchased its developer, Graphic Communications Inc.

Epson to Introduce at Comdex Low-End Scanning Head for Dot-Matrix Printers

Epson America Inc. said it will introduce next week at Comdex a plug-in scanning head that fits into dot-matrix printers and is priced at about $250. Like its recently announced laser printer, the company's first scanner product is designed for the low end of the desktop publishing market, Epson said.

The Torrance, California, company's plug-in scanning head fits into its EX-1000 and EX-800 9-pin and LQ-2500 24-pin printers. The product uses technology similar to that of the Thunderscan, a scanning device for the Macintosh from Thunderware, said Dennis Cox, Epson's group product manager of peripherals. Users remove the printer's ribbon and put in its place the scanning head, he said.

The device, which will be available by February, comes with an identity module that plugs into the back of the printer, utility software to enhance and manipulate images; and file transfer software that allows the images to be integrated with word processing, spreadsheet, and database programs, said Tim BiTomaso, Epson's product manager of peripherals.

Documents can be scanned at a speed of two to four lines per second and at resolutions from 60 by 60 dots per inch to 180 by 180 dpi, depending on which printer is being used, BiTomaso said.

"For the very moderate users of a desktop publishing software application, this is an economical way for them to start scanning," Cox said.

— Karen Sorensen

$395 Cheetah Upgrade Card Lets PC ATs Run 386 Software

Cards for AT Compatibles Due Soon

By Charles Bermant

LONGVIEW, TX — Cheetah International Inc. said it will ship this month a $395 80386 upgrade card for the IBM PC AT that enables it to run software for 386-based machines. Similar cards for AT-compatible machines will be released in the next few months, according to company vice president Gene Sumrall.

Unlike other recently introduced 80386 upgrade cards, the Cheetah Adapter/386 does not affect the computer's clock speed. Instead, Sumrall said, it makes the host machine completely compatible with 80386 custom software, much of which is expected to be shown next week at Comdex in Las Vegas.

"You don't gain any speed, but you gain functionality," Sumrall said. "This means that all of the new 80386 software will run on any AT."

The unit fits on the motherboard over the processor and does not occupy any expansion slots, said the company, which manufactures memory and add-on boards.

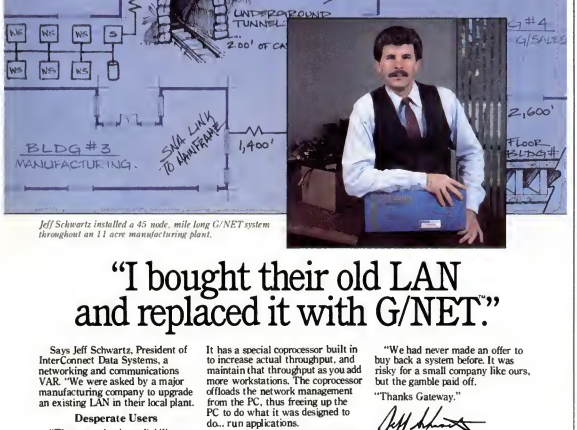
John Middleton, a technical marketing engineer for Intel, in Hillsboro, Oregon, expressed surprise at the low price, saying "I suppose it is possible, but it's amazing that someone could do it for $400."

The 80386 chip costs $299. A chipless version of the Cheetah/386 will be available for $95.

Middleton could not think of a reason why the board would not work, but called it "an incomplete way to use the 80386."

"It forgoes a lot of the benefits, such as speed and the ability to use 32-bit memory," Middleton said. "You will also lose some numeric support. But in terms of providing an 80386 environment for software, it is feasible."

Cheetah is also introducing three other new products at Comdex. The $295 Cheetah Cub is a zero-wait-state memory board for the IBM PC XT 286. In addition, two MIDI interface boards will be made available that work in conjunction with electronic keyboards. As music is played, corresponding musical notation is displayed on-screen, Sumrall said.



Jeff Schwartz installed a 45 node, mile long G/NET system throughout an 11 acre manufacturing plant.

"I bought their old LAN and replaced it with G/NET."

Says Jeff Schwartz, President of InterConnect Data Systems, a networking and communications VAR. "We were asked by a major manufacturing company to upgrade an existing LAN in their local plant.

Desperate Users

"They were having reliability problems with their network. At 10 nodes, network throughput was declining and users were losing data. In desperation, some were even disconnecting themselves from the LAN and going back to using floppies with their standalone PCs.

"We worked up a comprehensive plan to solve their problem, and recommended G/NET. However, they were reluctant to lose their investment in their old LAN, so we offered to buy back their entire network if they would follow our recommendation.

G/NET Designed to Maintain High Throughput

"We know G/NET is designed to handle network problems like this. It has a special coprocessor built in to increase actual throughput, and maintain that throughput as you add more workstations. The coprocessor offloads the network management from the PC, thus freeing up the PC to do what it was designed to do... run applications.

"This coprocessor feature allowed us to add network workstations and string cable over longer distances, while still protecting the integrity of the data.

45 Nodes, Over a Mile of Cable

"They accepted our offer, and almost a year later their G/NET LAN has grown to 45 workstations in three buildings, with over a mile of cable traveling underground, between floors, and over rooftops.

"They even bought another G/NET system for their national office. And with Gateway Communications' SNA and bridging, we can connect both G/NET LANs together, while providing SNA gateways to their mainframe.

"We had never made an offer to buy back a system before. It was risky for a small company like ours, but the gamble paid off.

"Thanks Gateway."

Jeff Schwartz
President, InterConnect Data Systems, Inc.

For more information on how you can get G/NET, with SNA, X.25, and asynchronous communication options, call:

(800) 367-6555

(714) 553-1555 in California

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Alloy Product To Convert PC Into Net Hub

FRAMINGHAM, MA — Alloy Computer Products Inc. said it will introduce next week at Comdex in Las Vegas a $5,495 hardware expansion product that converts an IBM PC XT or PC AT into the hub of a five-user network.

With the Alloy Plus 4 system, MS-DOS software running on the hub can be accessed by four additional users working at low-cost computer terminals, instead of PCs, Alloy said. Networked applications are not required, unless the network will be used for data sharing, said Alloy president and chairman Dick Gorgens.

The Plus 4 also works on an IBM PC equipped with a hard disk and is based on four Alloy PC-Slave cards placed in an expansion chassis attached to the PC via an interface card. Each PC-Slave card is "a true processor unto itself," according to Gorgens, and includes the NEC V20 microprocessor, which is compatible with the Intel Corp. 8088-2 chip, and 1 megabyte of RAM. Also included is Alloy's NTNX network software, which Alloy said is compatible with Novell Inc.'s Netware-286, and a 40-megabyte tape backup system and backup software. Users working at terminals linked to the Plus 4 store their files on the hub processor's hard disk, Alloy said.

The system, which does not include terminals, will be sold by value-added resellers and retailers.

AT&T

Continued From Page 1

tinue to market 6300s, then from my perspective there's no change," said Gary Bailey, director of planning and information services for American Freight Systems Inc. of Overland Park, Kansas. American Freight has about 20 of the machines installed.

What may be called into question by the announcement is whether AT&T will continue to market its model 7300 — a machine built by Convergent Technologies Inc. of Santa Clara, California — otherwise known to users as the Unix PC. AT&T's Campbell said the contract to build the 7300, AT&T's only non-Olivetti personal computer, remains in effect.

Unix PC user Bill Thompson, senior planning analyst with Black & Decker of Towson, Maryland, said he was unconcerned about the AT&T move and believes AT&T "will continue to support a series of Unix boxes," including the two 7300s he has installed.

WE PULLED THE PLUG ON CLARION v1.1

CLARION v1.0 $295.

(former actuator shown at something other than actual size)

CLARION v1.1 $395.

(artist's conception of no actuator at any size)

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Cordata to Announce LANs, Desktop Publishing Systems

Products to Be Available in Early 1987

By Lisa L. Spiegelman

THOUSAND OAKS, CA — Cordata Technologies Inc. will unveil two integrated LAN systems and two desktop publishing turnkey systems next week at Comdex, company officials said.

The CS 4400 series integrated LAN systems include a file server, communications hardware, and Novell Inc.'s Netware network operating system, the company said. They will be available to original equipment manufacturers and corporate buyers early next year. Pricing has not yet been determined, but the company said it expects to charge approximately $7,000 for each.

The baseband LANs have a data rate of 1.43 megabits per second over standard coaxial cable, according to Gary Jones, product manager for the company. The system can optimally support up to 50 IBM PCs, PC XTs, PC ATs, or compatibles, with a limit of 102 PCs. Each network can extend up to 7,000 feet from the file server, and workstations can be positioned up to 25 feet from the main cable, he said.

The series offers two 80286-based file servers, the CS 4440 and the CS 4480, both enhanced versions of Cordata's ATD IBM PC AT compatible. The CS 4440 has 640K of memory, a 40-megabyte hard disk, a 1.2-megabyte floppy disk drive, and six expansion slots. The CS 4480 has an additional 200K of memory, another hard disk, a 60-megabyte tape backup system, and two more slots. Both have an RS-232C and a Centronics port and can be expanded to include a second RS-232C port, according to the company.

Cordata's Intellipress desktop publishing turnkey system includes an 80286 PC, a laser printer, and an optional scanner.

The system includes a Local Area Network Interface Module Card (LANIM) interface board, which also supports Cordata's diskless PC boot card, Jones said. Optional network gateways are available that allow communication with X.25 public networks and computers that support IBM's 3270 SNA.

The company will also unveil two Intellipress desktop publishing turnkey systems, one featuring the IBM PC version of Pagemaker from Aldus Corp. of Seattle, and the other featuring Ventura, a desktop publishing package developed by Ventura Corp. of Morgan Hill, California. (See "Cordata Turnkey Desktop Publishing System to Ease MS-DOS Integration," October 13, 1986.) Microsoft Windows and MS-DOS are bundled in.

The hardware for both turnkey systems is identical, according to Jack Strange, director of product marketing for electronic systems. The primary difference between the systems is the software. "Ventura is fast and powerful, whereas Aldus is easy to use," he said. Both of the versions will be sold through retail channels, value-added resellers, and directly to reprographics companies, and they will be available January 1987, he said.

The systems include Cordata's Intelliprep 80286 microcomputer, which features 640K of memory, a 30-megabyte hard disk, one 1.2-megabyte floppy disk drive, and four IBM PC AT-compatible expansion slots. A 15-inch monochrome monitor and an eight-page-per-minute Intelliprep laser printer are included.

The Intelliprep Scanner, a 300-by-300-dpi digital input scanner, is optional with the system for $1,495.

AST's Premium/286 AT compatible is the core of the AST Premium Publisher systems.

AST Announces Two Desktop Publishing Units

By Edward Warner

NEW YORK — AST Research Inc. of Irvine, California, last week introduced two systems priced under $10,000 that provide everything for desktop publishing except the software.

The AST Premium Publisher systems are built around the AST Premium/286, a new AT-compatible personal computer, which the company said it is manufacturing at plants in the United States and Hong Kong. Also included is the AST Turbolaser printer and a new flat-panel monochrome monitor, which will be sold separately for $195. A system with the printer and monitor will sell for $7,995, while a system that also includes a document scanner is priced at $9,995.

As AST debuted the new hardware at a press conference here, the company also said it has developed strategic alliances with desktop publishing software developers Aldus Corp., Studio Software, and Ventura Software. Under the alliance, the vendors will engage in joint promotion and user training on desktop publishing products, AST said.

AST also said it will sell separately the five models of the Premium/286, the company's first line of personal computers. Based on the Intel Corp. 80286 microprocessor, the Premium/286 operates at keyboard-selectable speeds of 6, 8, or 10 MHz with zero wait states at each speed, AST said. Also included are seven AT-compatible expansion slots, two of which reportedly support no-wait-state operation at 10 MHz. AST said the two "Faststots" use a proprietary technology and can support expansion cards equipped with coprocessors, including the Intel 80386 chip. It announced no plan to produce such cards, however.

The Premium/286 Model 80, the basic configuration and the model included with the Premium Publisher, comes standard with 512K of high-speed memory, expandable to 1 megabyte, as well as a 101-key keyboard, a 1.2-megabyte disk drive, built-in floppy and hard disk controllers, and serial/parallel ports.

Other models also include support for IBM EGA, CGA, and Hercules monochrome graphics.

The Premium/286 line is based on Phoenix Technologies' BIOS and is priced ranging from $1,995 to $3,995. Like the rest of the new AST hardware, it will ship in January 1987.

Zenith

Continued From Page 1

variable-speed accesses to minimize transfer time, the Zenith spokesman said. "The machine is so fast it's adjusting its operations to be appropriate to external devices, such as hard disks," Magid said. "Zenith is trying to deal with the issue of how to decrease the write time to the hard disk." Magid said he expects that such enhancements won't really matter until users begin using multitasking, windowing software on the Z-348.

Another speed enhancement in the Z-348 is called "burst-mode memory," which minimizes the memory refresh process, Zenith said. "This would mean [the machines are] able to write to memory in more or less a parallel fashion," Magid said. "Again, the advantage would be speed."

Z-348 options will include a cache controller board, storing frequently accessed data in extremely fast RAM, according to Zenith. The company said the computer will have 10 expansion slots, with five left open for options and the other five holding required boards.

Zenith will phase out its slower 6-MHz 286 machine, the Z-241, by the end of the year, making the 8-MHz Z-248 the company's standard 286 machine, according to Henry Fale, publisher of *H-Scoop*, a monthly Heath/Zenith publication, in Sheboygan, Wisconsin. Zenith had no comment on the report.

In addition, Zenith is reportedly having trouble shipping the Z-181, the company's first laptop to use a super-twisted LCD for a brighter screen and 3½-inch floppy drives. Originally announced in June for early September delivery, dealers have yet to see more than single demo units.

"We are shipping the Z-181, but overwhelming demand has consequently led to back orders," said the Zenith spokesman. "In November we'll be ramping up production a great deal, but we will not fill all current orders until the end of the year."

Convergent

Continued From Page 1

Convergent will use Interactive's VP/ix, a port of Unix System V, Version 3 to the 386 architecture, according to Heinz Lycklama, senior vice president of Interactive Systems Corp., in Santa Monica, California. Because that chip supports virtual PC mode in protected mode, users can run DOS applications as tasks in protected mode, he said. Sources said that Phoenix Technologies Ltd. of Norwood, Massachusetts, will supply Convergent with the machine's ROM BIOS.

Convergent would not comment on the price or availability of the new products, but said it only makes announcements when shipments are imminent.

A source close to Convergent said the company was having difficulty getting the new 386 products ready by Comdex.

A source at Intel said that more than one 386 operating system might appear for the first time at the Intel showcase.

Hank Bannister and Patrick Waurzyniak also contributed to this report.

Maynard

Continued From Page 1

will work with hard disks from several vendors, and the company will sell an OEM version of the card, according to Wight.

Because the ERLL process packs data on hard drives in greater density than that for which they were originally designed, a drive must meet certain quality standards to be considered compatible with ERLL, according to Wight. Maynard will publish a list of those drives that it considers compatible, he said.

Maynard itself plans to market an ERLL-based subsystem for the PC and XT in December, with an AT version to follow early next year. The company will initially offer 110- and 220-megabyte ERLL drives in internal and external configurations.

Wight would not divulge their cost but said the ERLL systems would carry a "substantially lower price" than those currently in Maynard's product line. Maynard's existing 118-megabyte drive for the PC, which does not use the new technology, costs $4,995, and Wight said the company expects demand for them to fall off after the ERLL drive becomes available.

"I do not expect that we will sell any of the old drives," Wight said. "The new product represents new price and performance points for the market."

Maynard said it developed ERLL over the last two years, expanding upon IBM's Run Length Limited (RLL) technology which was ported to the PC environment this year.

Overheard...

'We just did a corporatewide update of Dbase II to Dbase III, and when we asked users to send in their copies of Dbase II, the first one that came back was still shrink-wrapped. It really makes you wonder what users are doing out there.'

C.L. (Cliff) Hodges, supervisor, personal computing services center, computer services department, Chevron.

• APPLICATIONS

Firm Chooses 1-2-3 Clone to Consolidate Data

VP Planner Offers Desired Multidimensional Capability

By Lisa L. Spiegelman

When the financial planning office at California First Bank wanted to consolidate its divisionwide financial information into one spreadsheet, it found a little-known feature in VP-Planner that was more appropriate for the application than Lotus 1-2-3.

"The people at the bank were proficient at using Lotus 1-2-3, and we were hired to create [1-2-3] macros that would link the worksheets," said Bruce Stamps, financial planning analyst at PC Wizzards Inc., a San Ramon, California, computer consulting firm.

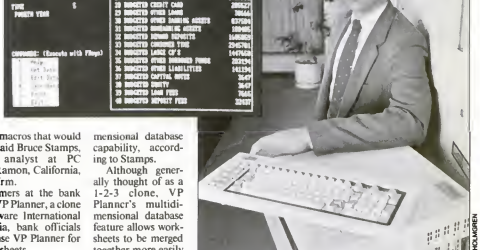
But after programmers at the bank tested both 1-2-3 and VP Planner, a clone from Paperback Software International of Berkeley, California, bank officials and Stamps chose to use VP Planner for consolidating the worksheets.

The idea was to develop a standard worksheet for each of the bank's 30 divisions and then have the capability to combine the worksheets into one spreadsheet for a corporate financial overview, without merging all the spreadsheets permanently, according to Joe Maly, planning officer for California First Bank. In addition, the bank's financial planners wanted to be able to quickly and easily select data from each of the worksheets and create new worksheets, he said.

Programmers at the company, as well as Stamps, found that VP Planner offered the best solution because of its multidimensional database capability, according to Stamps.

Although generally thought of as a 1-2-3 clone, VP Planner's multidimensional database feature allows worksheets to be merged together more easily than in 1-2-3. Macros for Lotus 1-2-3 could have been developed that had similar capabilities, said Stamps, but the time required to develop the macros to link the files would have more than doubled the overall time needed for development.

In fact, without altering VP Planner, the company created in two months a model that contains more than 20 worksheets. It would have required at least four months to create a similar model for Lotus 1-2-3, and even then users would have had to perform complicated macros for most of the functions, said Stamps.



Joe Maly, planning officer for California First Bank, said his company chose VP Planner to consolidate divisionwide financial information because the clone offered a multidimensional database feature linself in addition to 1-2-3 compatibility.

ROB HOLMGREN

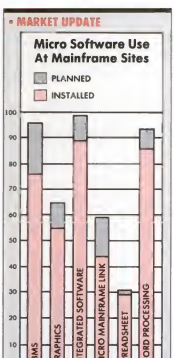
The one restriction to this feature is that only similar cells can be merged or combined in one worksheet, according to Stamps. For example, a user can only merge cells that contain information about time.

While designing a multidimensional worksheet with VP Planner is harder than an individual Lotus 1-2-3 worksheet, "once it is set up, it is great," said California First's Maly. "Plus, the product costs less than Lotus 1-2-3," he said. VP-Planner retails for $99.95; Lotus 2.01 lists for $495.

Paperback Software is not the only company to offer 1-2-3 compatibility and a multidimensional database capability. Intex Solutions Inc. of Wellesley, Massachusetts, offers two add-on products that give Lotus 1-2-3 and Symphony the three-dimensional database capability, according to company president Tony Hatoun. X-Y-Z Consolidate and X-Y-Z Spread, both priced at $395, allow users to create spreadsheets for up to 1,000 topics, consolidate that information into one spreadsheet, and update other worksheets with the consolidated data.

California First will continue using Lotus 1-2-3 for most of its financial planning, said Maly, but it expects VP Planner might help in other ways. "It is such a novel product that I haven't really thought of applying it to other applications yet," he said.

• MARKET UPDATE



A survey of information centers at IBM mainframe sites shows heavy use of microcomputers for integrated packages including Lotus 1-2-3 and Symphony! and word processing, with database management the most likely area for future purchases. The survey was conducted by Computer Intelligence, a market research firm in La Jolla, California.

INFOWORLD GRAPHIC

Spreadsheet Offers Simplified Use, Advanced Features, Company Says

By P.J Schemenaur

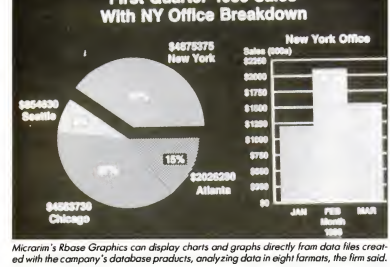
TORRANCE, CA — Daybreak Technologies said it will introduce at Comdex in Las Vegas a $149 advanced spreadsheet called Silk that uses plain-English formulas and requires less memorization and data entry than conventional spreadsheets.

Although the product can convert Lotus 1-2-3 files and uses many of the same conventions, it is not a 1-2-3 clone, according to vice president of marketing Eric Gaer. "We started with the premise that the user interface must conform to a standard in the marketplace," Gaer said. "Our user interface doesn't extend the learning curve [of Lotus]. In Silk you use everything you know in Lotus and go past it."

Among features that simplify the spreadsheet's use, said Gaer, are continual on-line context-sensitive help, a period command for automatically creating a series of columns representing time periods, and forms for up to 240 specifications for printing, graphing, sorting, and goal seeking.

Advanced spreadsheet features include automatic macro creation with a function key that records a command sequence. Silk has the capability to save definitions as they are created and look up macro, field, and range names. Keystroke recording to the hard disk is automatic, said Gaer, ensuring protection against power interruptions by recovering and reconstructing the worksheet. Allocation model creation is automated, saving sometimes days of model writing by conventional methods, according to Gaer.

Silk can convert files to and from DIF and Lotus 1-2-3, Version 1A and 1-2-3, Release 2.0 and 2.01 files. The company said it will ship the product on January 5. The spreadsheet operates on the IBM PC, PC XT, PC AT, and compatibles with 512K of RAM, and it is not copy-protected.



Micrarim's Rbase Graphics can display charts and graphs directly from data files created with the company's database products, analyzing data in eight formats, the firm said.

Rbase Graphics Displays Data Directly From Database Files

By PJ Schemenaur

REDMOND, WA — Microrim Inc. introduced last week Rbase Graphics, a presentation graphics product that can display charts and graphs directly from data files created with the company's database products.

The product, which analyzes and reports on data in eight different graphical formats, eliminates the previous need for Rbase System V users to manually transfer information from Rbase data files to graphics products from other vendors, said Lynn Luukinen, the director of product marketing. "They used Chart and Chartmaster presentation-quality graphics, integrated software as part of Lotus and other programs, or stand-alone graphics that worked with Rbase packages," she said. "They couldn't reduce their data to a graphable form without one of these packages."

Rbase Graphics allows multiple graphs on-screen simultaneously for comparisons. Formats for data are pie, line, column, bar, high-low, area, scatter, and mixed charts. Users can choose from 16 colors and six fonts for customizing graphic output.

The company also announced upgrades to Rbase companion products that extend the package's data management capabilities. The Rbase Extended Report Writer option allows customization of reports to meet needs such as printing data from multiple files, manipulating line and page breaks, and conditionally printing reports within reports. Rbase Clout, a natural-language artificial intelligence system, has been upgraded to be compatible with System V files, in addition to Rbase 4000 and 5000.

Also new to System V are the Program Interface and Rbase System V Runtime. The Program Interface makes it possible for application developers to use Pascal, C, and Fortran programs to access Rbase files. Runtime provides applications developers with a means of securing their application code for distribution to users.

Rbase Graphics will be available in the first quarter of 1987 for $295. Clout, scheduled for release by the beginning of 1987, will sell for $295. The Report Writer option, set to ship November 17, will cost $295. Program Interface is available through authorized dealers for $595; System V Runtime retails for $250 for five runtime systems.

Janus' Laser Print Plus Update Said to Extend Capabilities

CAMBRIDGE, MA — Three new versions of the typesetting/printing program Laser Print Plus announced by Janus Associates will extend the capabilities of the system for both high-end and novice users, the company said.

An upgraded MS-DOS version of the program, to be priced at $395, includes greater support of Hewlett-Packard Laserjet printers. The program features the capability to select different paper trays of the Laserjet 500 Plus while within a document and expanded support of HP cartridge and soft fonts, said Janus Associates president Stephen Blaha. Other new features are the capability to print graphics in landscape mode, user-selectable kerning, more advanced typesetting control for the generation of tables, and improved automatic text flow, he said.

Laser Print Plus has also been ported to the IBM RT PC. The new version, to be priced at $595, is the first such program available on the RT, Janus said. It will feature the functions of the current MS-DOS program and several new features added to an upgraded MS-DOS version, which is also being announced.

In addition, Janus introduced an entry-level version of its Laser Print Extra package. Priced at $79, the program features a subset of the features found in the more advanced versions. "It's designed to get people's feet wet in desktop publishing," Blaha said. "It requires no special hardware and precious little software support from other products." Laser Print Extra requires an IBM PC or compatible with 256K and a monochrome or color monitor.

— Karen Sorensen

Program Simulates Business Markets

PHILADELPHIA — Reality Technologies said it is developing an enhanced business simulation program, called Business Strategist, that can be customized to a particular industry.

"With Business Strategist, you choose the product line, the competitors, the market sensitivities, and the economic conditions," said Mark Goldstein, president of Reality Technologies. Users decide how to develop and market various products, while the computer provides realistic competitive companies to test the skill of the player, he said. Like Business Simulator, an earlier product, Business Strategist is based on the University of Pennsylvania's Wharton School of Business simulation used to train MBA candidates, Goldstein said.

Reality Technologies also plans to release a series of industry-specific simulations on disk. When released next week, the program will come with simulations of the computer, brewery, auto, pharmaceutical, and skiing industries. Reality will also make available optional simulations of five more industries: health care, textiles, nautical equipment, telecommunications, and oil and gas.

Business Strategist requires a PC with 384K of RAM and will sell for $249.95. Additional industries will cost $10 and up per industry.

Business simulators have attracted the interest of management at the highest level in companies, according to Goldstein. "Seventy percent of the people who bought Business Simulator have the title of vice president or above," he said. "One of our most enthusiastic users is the twelfth richest man in the country."

— Scott Mace

Word Processor Gains Features

OREM, UT — Word Perfect Corp. recently began shipping an update of its Word Perfect word processing package that adds more than 25 features, including additional support for laser printers and several enhancements aimed at legal professionals, the company said.

In addition, the company will ship this week a new version of its Math Plan spreadsheet, said Pete Peterson, Word Perfect's executive vice president.

Called Version 4.2, the new Word Perfect supports Apple Computer Inc.'s Laserwriter and several other laser printers that use the Postscript page description language, Peterson said.

Among the legal market features added to Version 4.2 are a line numbering option and the capability to generate a table of authorities (list of case citations), Peterson said.

A document summary feature allows users to insert information about a document at the top of the file, according to Peterson. Such data as the document's creation date, author, typist, and a brief description can be included. The program is priced at $495, with upgrades from 4.1 available for $35. Users who bought 4.1 after October 1 can obtain a free upgrade.

The new Math Plan, called Version 3.0, adds bit-mapped graphics and word processing features, such as the capability to move spreadsheet cells to an area where text can be wrapped around them, Peterson said. It will retail for $395.

— Eric Lach

Office Solutions Plans Major Update To Its 'Officewriter' Word Processor

By Eric Lach

MADISON, WI — Office Solutions said it is readying a major update of its Officewriter word processing package that adds a thesaurus and several desktop publishing features.

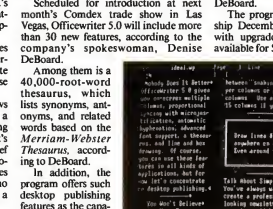
Scheduled for introduction at next month's Comdex trade show in Las Vegas, Officewriter 5.0 will include more than 30 new features, according to the company's spokeswoman, Denise DeBoard.

Among them is a 40,000-root-word thesaurus, which lists synonyms, antonyms, and related words based on the *Merriam-Webster Thesaurus*, according to DeBoard.

In addition, the program offers such desktop publishing features as the capability to show multiple columns on-screen, microjustification, and expanded font and full-page monitor support.

Other features include line and box drawing, index and table of contents generation, paragraph numbering, additional math functions, document search, and automatic hyphenation, according to DeBoard.

The program, which is scheduled to ship December 1, will retail for $495, with upgrades from previous versions available for $75.



Office Solutions' update of its Officewriter word processor will add a thesaurus and desktop publishing features, the firm said.

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News Briefs

Target Unveils Combined Mac Outliner/Processor

Target Software Inc. released a combination outliner and thought processor that installs as a Macintosh desk accessory, the company said.

Voila is compatible with more than 95 percent of Macintosh software, according to the company. The new product allows unlimited headlines, subheads, and expanders. Expanders are text edit windows with limited word processing capabilities that allow users to expand any headline or subhead. Users may individually edit fonts, sizes, styles, margins, text alignment, and spacing within each expander window. Either text or graphics may be stored within an expander and printed individually or as part of an outline, the firm said.

Voila is read/write compatible with Thinktank 512 and More, the company said. Voila can also read and write "text only" files. The product is fully compatible with Target's Mac Lightning spelling checker, Version 2.0. Voila outlines can be printed on the Apple Laserwriter and Imagewriter printers.

Target Software Inc., 14206 S.W. 136th St., Miami, FL 33186; (800) MAC-LITE or (305) 252-0892 in Florida.

Evolution Releases CAD Regeneration Package

Evolution Computing has released its newest CAD package programmed specifically to regenerate complex drawings quicker than existing CAD packages, according to the firm.

Fastcad was written in assembly language, which allows the software to offer increased redrawing speed, the company said. The software also allows four simultaneous active drawing windows; icon availability in the middle of drawing or editing to zoom, pan, manage windows, and select colors, layers, or line styles; and powerful selection rules combined with logical operators for precise editing control.

Fastcad runs on the IBM PC, PC AT, and compatibles, including the Compaq 386. It offers floating-point accuracy with near infinite zoom, a macro language, and bidirectional drawing exchange with Autocad and Versacad.

Evolution Computing, 437 S. 48th St., Suite 106, Tempe, AZ 85281; (602) 967-8633.

Company Announces Revision of Prodesign II

American Small Business Computers announced a major revision of its CAD package, Prodesign II.

Prodesign II provides on-screen command menus, in addition to the single-keystroke commands found on previous releases, according to the company. These command menus allow users to enter drawing commands from a mouse without using the keyboard.

The new macro feature makes it possible to customize Prodesign II for special applications, the company said. A block repeat makes it possible to draw an object once and repeat it a number of times, either in a straight line or in a circular fashion.

Several new drawing commands have been added, including geometric calculations to determine the area and length of shapes, including shapes with curved boundaries. Version 2.5 also features parallel lines, parallel curves, tangents to circles or ellipses, perpendicular lines, and cross-hatching.

Version 2.5 of Prodesign II will be available in November for $299. Current Prodesign II users can upgrade for $15, the firm said. The new release contains no copy protection.

American Small Business Computers, 118 South Mill, Pryor, OK 74361; (918) 825-4844.

File Compressor to Work With Popular Software

Sundog Software announced Squish, a 40K resident file compression program that works with software to release disk space on hard or floppy disks so that it can be freely reused, the firm said.

Squish uses short codes, instead of 1 byte for each character, to represent characters that appear often in a file. A shorthand notation is substituted for long strings of repeated characters.

The software works with all programs that use standard DOS functions, according to the company, including Rbase 5000, Dbase III, and Lotus 1-2-3. Squish sells for $79 and operates on IBM PCs or compatibles with MS-DOS 2.0 or later.

Sundog Software Corp., 264 Court St., Brooklyn, NY 11231; (718) 855-9141.

Software Synergy Ships Xenix Front End: 'U-Tools'

Software Synergy Group Inc. said it is shipping a menu-driven front end for Xenix systems that makes Xenix easy to use so that "it may become the preferred operating system."

Called U-Tools, the program permits users of Xenix to execute commands from the menu instead of through the operating system,according to David Baird, the marketing director for Software Synergy Group.

U-Tools features 20 user-definable options per screen, as well as 36 basic utilities, such as a communications utility for data capture. The program also allows for the easy transport of files between DOS and Xenix, according to Baird.

U-Tools is available for $195.

Software Synergy Group Inc., Orders Dept., 4718 Laureldale Road, Houston, TX 77041; (713) 466-7223.

Boeing Calc Upgrade Includes Security Feature for Networks

By PJ Schemenaur

BELLEVUE, WA — Boeing Computer Services recently announced Boeing Calc, Version 3.01M, an upgrade that includes multiuser capabilities and security for use in LAN environments.

Boeing Calc's security feature will be particularly valuable in multiuser applications by protecting the user against unauthorized changes, according to marketing information manager Dan Lees. The program's protection capability restricts access to read/write functions to individual work areas.

The company also said that another new product, Boeing Graph, will be available before the end of the year.

The command structure of Boeing Calc, Version 3.01M facilitates moving files between the product and 1-2-3, and functions such as string manipulation have been added for the convenience of users familiar with the Lotus product, the firm said. Boeing Calc continues to have the ability to read and write all versions of Lotus 1-2-3 and Symphony work files.

As in previous versions of Boeing Calc, the three-dimensional spreadsheet capability allows operations such as consolidating data from multiple sales offices with three or four keystrokes, said Lees. The spreadsheet works with 1-2-3 and Symphony work files, as well as standard DIF and ASCII files.

Available now, the stand-alone version of Boeing Calc costs $399, while a single copy of the LAN software supports up to eight nodes for $795. Both Boeing Calc and Boeing Graph are being marketed through value-added resellers and original equipment manufacturers.

Boeing Calc operates on the IBM PC XT, PC AT, and compatibles under PC-DOS 2.0 or later.

"Boeing Computer Services developed Boeing Calc internally to work with its own financial planning, consolidating parts and items from many places collectively for management — in particular, commercial airplane and aerospace tracking," said Lees. "It worked so well inside the company, other suppliers began asking for the software."

Boeing Graph will feature a three-dimensional perspective. "When used with a laser printer, it will give incredible resolution," said Lees. The package is designed principally for business, manufacturing, and scientific/engineering graphing. "It will give a different perspective than most [graphics packages] used in the office environment."

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Vendors Offer PC Publishing Capabilities

Software Products Support Windows

By Karen Sorensen

A number of software vendors have recently announced products supporting Microsoft Windows that will offer additional desktop publishing capabilities for the IBM PC and compatibles.

Hammerlab Corp. of New Haven, Connecticut, has introduced three software programs that support both the Microsoft Paint and TIFF file formats. Scan-Do is a $195 program that reads scanned images into Windows software from a variety of scanners, such as those from Microtek, IBM, Canon, and Ricoh, and includes image editing functions like cropping and enlargement, the company said. Hammerlab Museum is a $99 program designed to store and organize any image cut or copied to the Windows clipboard. And Bigpaint is a $295 paint program that features halftone image editing. Bigpaint offers resolution, display size, and image size that is limited only by available disk space, Hammerlab said.

Peoria, Illinois-based Dynamic Graphics Inc. announced it will provide five volumes of clip art for use with A.B. Dick's Windows-based Inprint desktop publishing system. The volumes are expected to be available by early 1987. Clip art and typefaces included in the Diagraph library will soon be available to merge with word processing programs via Windows, according to Diagraph developer Computer Support Corp. of Carrollton, Texas. The product is scheduled for delivery in the second quarter of next year.

Bitstream Inc. of Cambridge, Massachusetts, has joined the list of Windows developers with its PC Fontware font packages, which are scheduled to be available in the spring. Bitstream will initially provide 20 different typefaces, each with four styles: roman, italic, bold and bold italic. Each font package will include one typeface family and a font installation program, the company said.

Enabling Technolgies Inc. of Chicago previewed a Windows version of its Macintosh Pro-3D three-dimensional modeling program, which it says will be offered in full color and available in January.

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Word Processing Software

Power. *77,000 word spelling checker. Personal dictionary. 180,000 synonym thesaurus. Integrated address book and full mail merge with ASCII and Professional File data. Line drawing. Underline, boldface, italic and other enhancements. Right justification. Single/double line spacing. Indented text and advanced block operations.*

Performance. *Fast operation and printing. Macros. Speed keys. Supports virtually all popular printers, including the HP LaserJet printer.*

Fast To Learn/Efficient To Use. *Screen resembles a standard sheet of paper. What you see on screen is what is printed. No cryptic commands or on-screen symbols. Pull down menus display all options. On-screen help anytime.*

Office Integration. *Built-in IBM DCA document interchange. Reads/writes ASCII data. Incorporates graphs, reports, and spreadsheets from selected sources.*

Network Support. *Runs on the IBM® PC Net, 3Com® 3+™ and Novell Advanced NetWare™/86 networks.*

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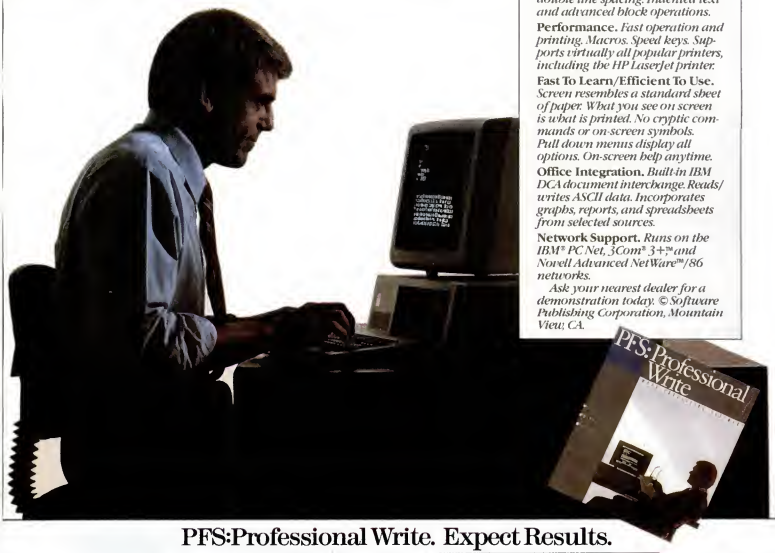

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Ehman Offers 2 SCSI Hard Drives for Mac Plus

Drives Make Apple Micro More Feasible Business Machine

By Lisa L. Spiegelman

Ehman Engineering Inc. of La Mesa, California, last week introduced two hard disk drives that connect to the Macintosh Plus' Small Computer System Interface (SCSI) port.

The HD40 is a 40-megabyte hard disk drive with an access speed of 30 milliseconds, according to the company. It is priced at $1,895. The HD20, a 20-megabyte hard disk with an access speed of 85 milliseconds, is priced at $1,295.

The Ehman HD40 is one of a growing number of hard drives available for the Macintosh Plus. These drives make the computer more plausible as a business machine. SCSI hard drives are more expensive than non-SCSI drives, but offer users faster access speed and the capability to link up to seven peripheral devices.

Other recently introduced SCSI drives include the Apple Hard Disk 20SC. Priced at $1,299, it has a 65-millisecond access speed, the company said.

In June, MD-Ideas Inc. of Foster City, California, introduced the HDT-30/40, a 30-megabyte hard disk drive and 40-megabyte tape backup system priced at $2,995 that has an access speed of 65 milliseconds. The company also offers a line of SCSI hard disk drives, including the HD-20, priced at $1,095, and the HD-30, priced at $1,595.

Rabbit Inc. of Austin, Texas, is planning next week to announce a 40-megabyte hard disk drive for the Macintosh Plus that has an access speed of 28 milliseconds. The $1,495 Minimagic is a smaller version of the company's other hard disk drives, said company president David Goldman. Last month Rabbit released the Minimagic 20. The 20-megabyte hard disk drive has an access speed of 65 milliseconds and is priced at $995, the company said.

The Macintosh Plus was the first machine with a SCSI port, according to Apple. "The obvious advantage to SCSI hard disk drives is performance," said Alan Zisser, product manager in mass storage products for the Cupertino, California, company. "It is a faster way of transmitting data. With our SCSI hard disk drive, a user can see as much as 25 to 80 percent improvement in the speed of processing data."

Compared to a one-device serial port, one SCSI port can support up to seven SCSI peripheral devices, such as a scanner, printer, or tape backup, said Randy Carter, product development manager for Ehman. Because a SCSI port can support two devices simultaneously, a user can write data to one hard disk drive while reading data to another hard drive.

SCSI hard disk drives are more expensive than IBM PC-compatible hard disk drives, according to Carter, because most of the drives are new to the market and Apple Computer has been dictating the price of products. The prices will drop, he said, when Far Eastern manufacturers can break into the market.

However, according to Eric Wong, MD-Ideas director of marketing, Macintosh Plus SCSI hard disk drives are more expensive than IBM PC-compatible drives because manufacturers have to include an outside case, a power supply, cables, and cable ports. (There are some internal drives available; see "Internally Mounted SCSI Drive for the Macintosh Introduced," October 27, 1986.)

"If you build a hard disk for an MS-DOS computer, all you need is the drive and the controller board," Wong said. "Currently, the Macintosh computer is a closed architecture machine; there is no room internally to expand. The price of the SCSI hard disk drives might come down a little bit, but they will always be more expensive."

Because the SCSI port drives are faster, the cost is relatively the same as the serial port drives, Wong said. He added that "the SCSI port will eventually become the standard hard disk drive."

"By coming out with a SCSI port machine, Apple is telling the world that we are moving toward that standard for some machines," said Zisser. Since the SCSI port is becoming an industry standard, like an RS-232 port, hard disk vendors can build drives that are compatible with other hard disk drives, he said.

The HDT-30/40, by MD-Ideas, is a hard disk drive and tape backup system with an access speed of 65 milliseconds.

CSSL Unveils Fault-Tolerant PC Products

'Fail Safe' System Mirrors Disk Data

By Charles Bermant

SEAL BEACH, CA — CSSL Inc., a marketing and communications firm, has introduced a line of "fault-tolerant" PC products that mirror data from one hard disk to another, creating an exact copy of the primary drive onto a backup unit.

The products include a software program, a board, and a hardware/software combination that bring the fault-tolerant concepts into the PC arena. (See "PC Add-On Board to Protect Against Accidental Data Loss," October 13, 1986.)

Fail Safe, a $395 software package to be available in late November, makes it possible to mirror a drive to a second drive or a Bernoulli Box. CSSL chief executive officer Frank Westall said that future versions will allow tape drives to be hooked up to the system.

When the system is in use, the backup drive is invisible and cannot be accessed by the user.

The Disk Fault Tolerance (DFT) board will be on the market by January and will carry a $595 list price, according to Westall. It will be able to support up to 15 PCs, including data encryption and security aspects. The as-yet-unpriced DFT II will include a replacement controller card and will work with operating systems other than DOS.

All of the products were developed by CSSL in conjunction with Kolod Research Inc. of Northbrook, Illinois, which provides design and development services to storage subsystem manufacturers.

Westall said that several systems manufacturers and government agencies have shown interest in the technology, adding that he expected to enter into several OEM agreements.

• NEW PRODUCT SPOTLIGHT

The Dreamer, an auxiliary keyboard designed for the IBM PC and compatibles, is now available in two new models. The $259 Developer's Dreamer is completely programmable, with 50 keys that can be reassigned with the aid of keyboard enhancer software. The $229 Word Perfect Dreamer features single keystrake access to the program's most used commands. Both products plug into the keyboard adapter port. from T.S. Microtech Inc., 12565 Crenshaw Blvd., Hawthorne, CA 90250; (213) 644-0859.

Vendor to Use Bernoulli Box Technology In Line of Removable 5¼-Inch Cartridges

SCOTTS VALLEY, CA — Using Bernoulli Box technology from Iomega Corp., Mountain Computer Inc. said it will manufacture the Beta 20 line of removable 20-megabyte 5¼-inch cartridges in both external and internal configurations.

This move means removable media Bernoulli technology will now be available from three sources. It is currently part of the Tandy product line. The Iomega Beta 20 line uses a proprietary storage technology in which the head "flies" above the media and acts like a hard disk drive. (See "Removable Media Market Is Heating Up," October 27, 1986.) Mountain Computer will also market Iomega's Alpha line of 8-by-11-inch drives under the Mountain label in an original equipment manufacturer arrangement.

The Mountain-made Beta line will be shown November 10 to 14 at Comdex in Las Vegas and will begin shipping this month, according to Mountain manager of marketing communications Ron Rader. A price for the product was unavailable. The basic product costs $1,799 when purchased from Tandy.

— Charles Bermant

Sony Plans to Unveil Rear-Projection Monitor for Computers

By Patrick Waurzyniak

PARK RIDGE, NJ — Sony Corp. of America said it plans to introduce its first rear-projection monitor for computers at Comdex, Thomson Consumer Products Corp. said it will also introduce a variable-frequency monitor at the show.

Sony's KPR 4620SD is designed for multimedia business presentations. Equipped with 181-channel, remote-control cable capability, the 46-inch monitor has six three-way speakers built in and offers compatibility with PCs and the Apple II line with an optional Apple interface, according to the company.

Sony's KPR 4620SD 46-inch rear-projection monitor is designed for multimedia business presentations.

The new Sony monitor will retail for $3,399 and offer 640-by-200-pixel resolution with the IBM Color Graphics Adapter (CGA) or CGA-compatible graphics boards, according to Clem Shemanski, national sales manager for the Computer Peripherals Product Group in Sony's Information Products Division.

The large Sony monitor can be paired with high-resolution graphics boards like the AT&T Targa series to provide even higher resolution, 512 by 512 pixels, in 512 on-screen colors from a palette of more than 260,000 colors, Shemanski added.

Sony also has two smaller Multiscan projection screen monitors and a 13-inch Multiscan monitor that the company will demonstrate at the Las Vegas show, which will be held from November 10 to 14.

Thomson Consumer Products Corp. of Culver City, California, will also introduce at Comdex a variable-frequency monitor with the 4375M Ultrascan, a 13-inch display that can switch horizontal scan frequency between 15.7 and 35 KHz. The $895 monitor also adjusts its vertical scanning frequency between 45 and 75 KHz.

Thomson's Ultrascan supports the CGA, Monochrome Display Adapter, Hercules Graphics Card, Enhanced Graphics Adapter, and Professional Graphics Controller graphics standards for IBM PCs.

Alps Introduces Two Dot-Matrix Color Printers

By Karen Sorensen

SAN JOSE, CA — Alps America has expanded its product line with several new 18- and 24-pin dot-matrix color printers that it said are intended to compete against daisy-wheel and low-end laser printers.

The P2400C wide-carriage series is designed for multiuser environments and includes the $1,395 24-pin P2424C. The P2424C features speeds of 360 characters per second (cps) in draft mode, 180 cps in correspondence mode, and 120 cps in letter-quality mode, Alps said. The $1,295 18-pin P2418C offers speeds of 250 cps in draft mode and 125 cps in letter-quality mode.

The ALQ300 wide-carriage series, for high-volume single-user applications, includes the $995 24-pin ALQ324, with a draft speed of 240 cps, correspondence speed of 120 cps, and letter-quality speed of 80 cps; and the $895 ALQ318 with a draft speed of 200 cps and letter-quality speed of 100 cps.

The ALQ200 series is a narrow-carriage version of the ALQ300 series and includes the $695 24-pin ALQ224, which has a draft speed of 240 cps, correspondence speed of 120 cps, and letter-quality speed of 80 cps. The $595 18-pin ALQ218 operates at a draft speed of 200 cps and a letter-quality speed of 100 cps.

All of the new 18-pin printers emulate the Epson FX-185 and JX-80 printers; and the 24-pin printers emulate the Epson LQ-1500 and JX-80, said Daniel Steele, Alps' printer product marketing manager.

News Briefs

Okidata to Provide Extra Emulations for Laserline 6

Okidata announced it will provide additional emulations for its recently unveiled Laserline 6 printer.

The company will include free Laser-control software from Insight Development with printers shipped until March 31, 1987. The software will provide emulations of the Diablo 630, Epson MX-80, IBM Graphics Printer, Qume Sprint 11, Okidata Microline, and several NEC printers such as the 3550, Okidata said, substantially increasing software compatibility with the Laserline 6. The $2,195 printer was recently introduced with resident Hewlett-Packard Laserjet and Laserjet Plus emulations only. The software also allows users to access all 15 of the Laserline 6's fonts, even with software aplications that do not support the fonts, the company said.

Lasercontrol will help Okidata compete with Epson America Inc.'s recently introduced laser printer, according to Frank Lodge, Okidata's product manager of nonimpact printers.

Okidata, 532 Fellowship Road, Mt. Laurel, NJ 08054. (609) 235-2600.

Receiving Unit Decodes, Synchronizes Time Signals

Precision Standard Time Inc. introduced the OEM-10, a receiver that decodes time signals and synchronizes them onto PCs.

The $450 peripheral can be used either in network file servers or on individual PCs and will be most valuable in databases where precise timing transactions should be entered, according to company vice president of marketing Rex Brown.

The unit recieves WWV and WWVH signals from the National Bureau of Standards, synchronizing them to within 10 milliseconds of the NBS atomic clock, the company said. The information includes, day, hour, minute, second, tenth of a second, and hundredth of a second.

Precision Standard Time Inc., 2585 Scott Blvd., Santa Clara, CA 95050; (408) 980-8001.

PC's Ltd. Says Its AT Micro Is the Industry's Fastest

PC's Ltd., a mail-order vendor, is planning to introduce at fall Comdex a 16-MHz IBM AT compatible, which the company says is the industry's fastest such machine.

The $2,995 PC's Ltd. 286 16 is currently shipping and in its standard configuration features 1 megabyte of RAM, a choice of a 1.2-megabyte or 360K floppy disk drive, eight expansion slots, and a 192-watt power supply, the company said.

PC's Ltd., 1611 Headway Circle, Bldg. 3, Austin, TX 78754; (800) 426-5150.

Firm Offers Add-On Card With Hayes-Type Modem

Practical Peripherals is now marketing the Practical Multifunction 1200, a multifunction card that includes a Hayes-compatible modem.

The $395 full-slot card can accommodate up to 512K of RAM and includes print spooler capabilities, two serial ports, a parallel port, and a clock/calendar. The modem is switchable between 1,200 and 300 bits per second and is equipped with error checking along with auto-dial and auto-answer capabilities, the company said.

Software provided with the package includes the Pop-Up Deskset Plus, a memory-resident desktop organizer, and four other utilities.

Practical Peripherals, 31245 La Baya Drive, Westake Village, CA 91362; (818) 991-8200.

Turbo Board to Increase Standard PC Clock Speed

Maynard Electronics has entered the 80286 turbo board fray with the Surprise 286, which it said increases the clock speed of a standard PC from 4.77 MHz to 7.2 MHz.

The $599 half-slot board is designed to toggle between three different speeds through the use of software and cache mode. According to the company, the bundled software works in conjunction with the board as a means of speeding up DOS. The software speeds up writing to the screen, making a perceptible difference to the user.

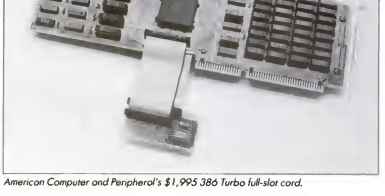
The company said that through use of the board and software, a PC's speed can be increased up to 6.6 times.

Maynard Electronics, 480 Semoran Blvd., Casselberry, FL 32707; (305) 331-6402.

Company to Ship Board For Enhancement of 286s

American Computer and Peripherals will ship this month the 386 Turbo, an accelerator card for the upgrade of 80286-based machines. The company claims that the $1,995 full-slot card will increase software performance up to 400 percent and will support all software designed for the 80386. The board is designed to double the clock speeds of 6-MHz and 12-MHz ATs, with the rates switchable without a system restart. The board also includes 1 megabyte of cache memory.

American Computer and Peripheral Inc., 2720 Croddy Way, Santa Ana, CA 976204; (714) 545-2146.



American Computer and Peripheral's $1,995 386 Turbo full-slot card.

Quadram, Orchid to Market 80386-Based PC Add-On Boards

By Patrick Waurzyniak

Both Quadram Corp. and Orchid Technology said they will market 80386-based PC add-on boards priced under $1,500, one for the PC XT and the other for the PC AT.

Quadram's Quad 386 XT uses an 80386 microprocessor running at 16 MHz and occupies a single expansion slot in an IBM PC XT or compatible. The board will offer 1 megabyte of 32-bit memory with 256K of Dynamic RAM, plus an optional board that upgrades memory by 2 megabytes.

Quadram of Norcross, Georgia, claims the board's main 32-bit memory architecture assures users of no performance penalty related to the 8-bit bus used by the XT.

The board will support expanded-memory applications software, such as Lotus 1-2-3 and Symphony, allowing its execution in 32-bit memory.

"We currently are evaluating control software being developed by major software houses," said Cynthia Ringo, Quadram's division manager for board products.

Quadram plans to show the board at Comdex in Las Vegas next week and ship it in production quantities by the end of the first quarter of 1987. The Quad 386 XT will include a two-year warranty.

Orchid Technology of Fremont, California, also plans to unveil its entry at Comdex. Its board, the Jet 386, is designed to work with the IBM PC AT.

Orchid's 16-MHz 80386-based accelerator card will boost the speed of an AT by a factor of three, according to a company spokesman. Replacing the 80286 processor with a 32-bit bus and 64K of cache memory, the Jet 386 addresses all of the AT's memory and will be compatible with the anticipated 80386 software, Orchid said.

Firm to Release Less Expensive Text Scanner

By Karen Sorensen

FAIRFIELD, NJ — Compuscan Inc. will ship in December a lower cost version of its PCS Model 240 text/image scanner.

The $3,995 PCS Model 245 can scan a full 8½-by-11-inch page of typewritten text or images at a resolution of 200 or 300 dots per inch in under 30 seconds, the company said. Up to 50 pages can be stacked for automatic sheet feeding. Optical Character Recognition (OCR) software provided with the machine allows the scanner to read 20 different typewriter fonts, such as Courier 10 and Prestige Elite, and scan them in formats compatible with more than 10 word processing programs, including IBM Displaywrite, Word Perfect, Multimate, and Wordstar, Compuscan said.

Scanned images can be edited using Compuscan Image Editing Software, which comes with the machine and allows users to rotate, crop, shade, and bit-edit images, among other tasks, the company said. Pages up to 8½ by 11 inches in size are supported for image scanning and up to 8½ by 14 inches for text scanning.

The PCS 245 uses its own Motorola 68000 microprocessor and a custom video interface to improve image acquisition, OCR speed, and accuracy, said Gerald Labie, Compuscan's vice president of sales and marketing. The PCS 245 works with IBM PCs, PC XTs, PC ATs, or compatibles and requires a graphics adapter such as the Hercules card and a minimum of 312K of memory.

The Model 245 is similar to the company's existing $5,995 PCS Model 240, but does not include the capability to interface with dedicated word processors, Labie said.

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Canon Engine Add-On Boards To Boost Printer Resolution

By Karen Sorensen

Two companies recently announced add-on boards that they said will allow laser printers with Canon engines to support greater resolution.

Tall Tree Systems of Palo Alto, California, announced that its new J-Laser Plus scanner/laser printer interface card now supports a resolution of 300 by 600 dots per inch. The card, which works with any laser printer using the Canon LBP-CX engine and the Canon 1X-12 300-dpi scanner, now enables the printer to produce smoother lines and characters with the added resolution, according to Tall Tree. Software support for the higher resolution is currently available via the Le Print program from Le Baugh Software and is forthcoming from Z-Soft's PC Paintbrush+, Media Cybernetics' Halo DPE, and Award Software's Laser-Press.

The J-Laser Plus card, priced at $599 for the IBM PC XT and $699 for the PC AT, features 2 megabytes of memory and uses a video interface as well as the expanded Lotus/Intel/Microsoft memory format — features that allow the card to triple the speed at which a page is scanned and increase printing speed as much as 50 times, Tall Tree claimed.

Conographic Corp. of Irvine, California, has also introduced an optional raster image processor (RIP) that offers 300-by-600-dpi resolution when used with its new Conovision 2800, a monochrome graphics adapter for IBM XTs, ATs, and compatibles.

The $660 RIP works with any laser printer using the Canon LBP-CX engine and prints formatted pages at the maximum printer speed of 8 seconds per page, company president Luis Villalobos said. The graphics adapter provides a resolution of up to 2,880 by 1,024 pixels, emulates the Hercules Graphics Card, includes a Microsoft Windows driver, and is priced at $1,325, he said.

C. Itoh Unveils Faster, Quieter 24-Pin Printer

Says Printhead Is Unique to Market

TORRANCE, CA — C. Itoh Digital Products Inc. recently announced its new 24-pin printer, the Prowriter C-815 Supra, which it said will ship in December.

The printer, designed for a multiuser environment, can print at speeds up to 400 characters per second (cps) in draft mode and 162 cps in letter-quality mode, according to C. Itoh. Noise level is rated as low as 51 decibels through a quiet mode provided with the printer. Speed and low noise level are achieved through a diamond-shape printhead that has four rows of six pins — a characteristic unique to the market, the company said.

The $1,995 machine can produce bidirectional graphics at a resolution of 180 by 360 dots per inch. Software compatibility is provided through emulations of the IBM Proprinter XL, Toshiba P351, and Qume Sprint 11. Other features of the printer include the capability to print up to six-part forms and a front panel that includes a clear buffer function. The firm says the printer produces true circles for pie charts rather than the ovals often made by other 24-pin printers. Options include a down-loadable font card, a bidirectional tractor feed, and single- and dual-bin sheet feeders.

— Karen Sorensen

Firms Announce EMS Boards Made For IBM XT 286s

Ideasociates of Billerica, Massachusetts, and Boca Research Inc. of Boca Raton, Florida, recently announced EMS boards that are designed for the new IBM XT 286.

Ideasociates' All Aboard 286 multifunction board uses surface-mounted chips in either 256K or 1-megabit dynamic RAM sizes to provide expanded memory capability ranging from 4 megabytes to 16 megabytes.

The All Aboard 286, which the company said also works with ATs and compatibles, offers graphics capability by providing EGA-compatible resolution of 640 by 350 pixels in 16 simultaneous colors.

Priced at $995 for 128K of memory, All Aboard 286 is priced at $2,595 for the 4-megabyte configuration and $12,995 for the 16-megabyte configuration. The board is scheduled to ship in the first quarter of 1987.

Boca Research's low-cost EMS board, the Bocaram, can fit all IBM PCs, including the new XT 286, the company said. Available in three memory configurations, Bocaram is now available through dealers at $245 for 256K of memory, $395 for the 1-megabyte version, and $740 for the 2-megabyte version.

— Patrick Waurzyniak

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The ME V20 (ATjr)

This 8088 based machine with a Norton Rating of 3.3 is the fastest XT compatible on the market. If you need speed, but don't have the budget for the 286 unit, the ME V20 is the ideal, low cost, high performance computer. The ME V20 runs at 4.77/8MHz switchable clock using a NEC V20 processor for maximum speed and still full compatibility. The ME V20 includes: 640K, 360K floppy disk drive, floppy disk controller, and AT style keyboard.

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Overheard...

'The small-business man really doesn't care if it's IBM's Token Ring or 3Com's Ethernet he's using.'

David Kay, president of Koypro, explaining his company's choice of networks to support.

• TECHNOLOGY UPDATE

Networks Turning to Diskless Workstations

PCs Without Floppies Offer Security, Less Cost, Buyers Say

By Laurie Flynn

Floppy disks on network workstations may become relics, as network managers install diskless workstations to make networks more convenient, more secure, and less costly.

Only 5 percent of the 12,000 to 14,000 Ethernet adapters network vendor 3Com Corp. sells each month now include Etherstart, an optional ROM chip that enables users to boot directly off the network server. But a recent poll of buyers showed that over half used their floppy disks only to start their computers, while working primarily with the network's file server, the company said.

Armed with that knowledge, many vendors and users are touting the advantages of diskless PCs.

"There really is no reason to have floppy disks on a network," said Dennis Passavoy, president of the Los Angeles Netware Users Group and executive vice president of Datalan, a Novell value-added reseller in Canoga Park, California.

Diskless PCs are more convenient than conventional micros as network workstations, said Bob Morgan, distributed systems manager at San Francisco State University, where two 3Com Ethernet networks are used. Students at the university's business school find computer use less troublesome when they don't have to deal with floppy disks. Morgan said sharply decreasing the number of disk drives will help him keep maintenance costs down, since floppy disk drives require regular maintenance and cleaning.

And, while the price difference between diskless workstations and cheap PC clones with floppies isn't great now, according to Passavoy, that may soon change.

© BOB CHOVANCE/INFOWORLD

Network maker Novell Inc. of Orem, Utah, recently announced it would purchase San Jose, California-based Santa Clara Systems, which will create a diskless workstation it claims will sell for under $600. Other companies may follow suit, including 3Com, which is seriously investigating offering such a unit, according to William Krause, the company's president.

Diskless workstations also offer an added measure of security because they make it difficult for individuals to copy information from the file server onto a diskette and secret it away.

"It's nice for us to put something on someone's desk that they won't fiddle with," said Morgan. While security isn't the university's major consideration for installing diskless workstations, there was a time when the business school's workstations with disks were locked up when they weren't being used, he said.

Passavoy said the security enhancement is not a major reason he installs diskless PCs on a network, since most LANs have at least some level of security built in.

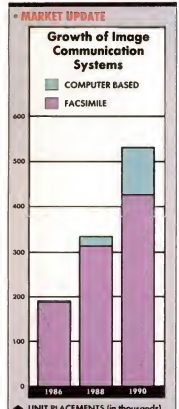
"If you have a client who's worried about somebody copying off the system, there are plenty of ways to deal with that within the network," Passavoy said. But he did say the added level of security is a bonus on top of the convenience, cost savings, and performance advantages of working off a central file server.

The obvious disadvantage to a diskless workstation on a network is that it takes control out of the hands of the single user and puts more weight on the file server. "If the file server goes down, the diskless workstations are useless," said Dwayne Walker, a network consultant with DMR & Associates, in Glendale, California. "It has the same drawbacks as a minicomputer."

However, Passavoy said he advises users to install even single-user programs on the file server whenever possible, which further reduces the need for disk drives on the workstation. Working off the file server gives users the added benefits of the shared disk drive and printers, and provides them with file backup on a regular basis, even if the programs themselves are not shared.

But as Morgan points out, some single-user programs are still not installable on a network and instead must be run from a floppy disk. "You never can tell who's going to need to use a single-user program that's copy-protected — like Lotus 1-2-3. That's why we haven't gotten rid of disks altogether," said Morgan.

• MARKET UPDATE



UNIT PLACEMENTS (in thousands)

Although CAP International estimates that facsimile systems will account for 85 percent of the growth, computer-based equipment that integrates software, scanners, nonimpact printers, and document storage will gain an increasing market share.

AT&T Upgrades Toll Switches to Make ISDN Service Available Between Sites

By Sharon Fisher

SAN FRANCISCO — AT&T announced last week that it plans to upgrade the toll switches in its telecommunications network by mid-1987, which will make ISDN services available between customer sites.

Possible benefits include transmission to remote computers without a modem, automatic identity transmission that would make passwords unnecessary, and video teleconferencing over a telephone line, officials said.

Due to the complex equipment required, however, ISDN's benefits are only going to be felt by large companies initially, said Joseph Baldini, district manager for marketing service concepts.

ISDN, or Integrated Services Digital Network, is an integrated interface of an array of services using a digital network, said Vicky Hand, instructor at the AT&T customer education center in Cincinnati. "AT&T's goal is a computer that can respond to a variety of inputs, including voice," she said.

While many ISDN services are available today, some of them, such as data transmission at 64,000 bits per second, currently require a private line to each destination, the company said. At best, public lines today can transfer data at 19,200 bps, said Hand. The current inability to use public lines limits ISDN services to within a customer site.

As the company adds the Primary Rate Interface (PRI) to the switches in its global telecommunications network, data can be transmitted at 64,000 bps over a public line, said Richard Allen, also an instructor at the AT&T customer education center. PRI is known as a "23B+D" interface, which means it has 23 channels that can transmit data at 64,000 bps plus another channel that also transmits at 64,000 bps, used for signalling. For operations that produce a great deal of data, such as video, several B channels can be bundled together, Allen said. Six B channels, for example, could transmit at 384,000 bps, which is sufficient for a teleconference.

According to Allen, fees for total ISDN service haven't been set. He would not disclose any prices but described the cost as "usage sensitive" with a fixed charge for access to the network. AT&T will not take a tariff plan to the Federal Communications Commission until the company is ready to implement the services in 1987, he said.

Some standards have already been approved by the CCITT (Consultative Committee for International Telephone and Telegraph), a European standards organization. While others have not yet been set, they will be something that AT&T can migrate to easily, said James Byrnes, staff manager of media relations.

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—Susan B. Magee, Senior Vice President
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Adds Gary Clarke, the manager supplying PC products and support to agents, "We're also writing a Paradox application that lets agents prospect among non-policyholders by importing and sorting commercial databases such as Dun & Bradstreet."

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Mass Mutual evaluated all the leading database packages and selected Paradox for its ease of use and powerful, integrated development tools. They include PAL, the Paradox Application Language, and "scripts," which Clarke says are "fantastic for prototyping."

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"We're getting rave reviews from agents—even the skeptics," says Clarke, who predicts that nearly all of the company's 4,000 agents will soon use Paradox. "It's so Lotus-like, it's easy to pick up. Paradox lets agents spend their time marketing instead of struggling with software."

Susan Magee agrees, "Paradox does more for us than any other PC database."

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Omnitel's Quad 1200 multiple modem boord combines four 1,200-bps modems on a single odd-on cord, allowing four network users to access it simultaneously.

Omnitel Combines 4 Modems On 1 Board for Network Users

By Lisa L. Spiegelman

FREMONT, CA — Omnitel Inc. said it plans to announce at Comdex two products in its Netcomm series that combine four modems on one board, allowing up to four LAN users to access the board simultaneously without individual modems.

The Quad 1200 has four 1,200-bit-per-second modems, and the Quad 2400 has four 2,400-bps modems, saving money on modems, cabling, and phone connections, said Baldev Krishan, company president. More than one board can be added to a system to provide modems to eight, 16, or more simultaneous users, he said.

Currently in beta test, the Quad 1200 will cost $1,249 and be available in December. The Quad 2400 will be priced at $1,795 and will reach the market early next year. The products will be available to large corporate microcomputer buyers and original equipment manufacturers, Krishan said.

Each Netcomm Quad board can be plugged into an IBM PC, PC XT, PC AT, or compatible card slot. The boards are also compatible with dedicated and non-dedicated servers for IBM Token Ring, Ethernet, and Starlan networks running Novell's Advanced Netware, 3Com's Etherplus, or Microsoft's MS-Net LAN software, the company said. The Quad 1200 and Quad 2400 boards can also be used with multiuser systems based on the PC AT, PC XT, RT PC, and compatible computers using Xenix or other Unix software.

Kaypro to Offer Network File Servers, 80386-Based Micros

By Laurie Flynn

SOLANA BEACH, CA — As anticipated, Kaypro Corp. last week unveiled details of a network file server and two PCs based on the Intel 80386 microprocessor, as well as two streaming tape backup systems.

"Our main point of differentiation is that we will be the one-stop shop for all the user's network needs," said David Kay, president of Kaypro. Through its dealer channel of authorized network installers, the company will offer all cabling, hardware, and software required for a complete network, he said.

Kay said the firm has not yet settled on the pricing for the machines, which will be announced at Comdex in Las Vegas. The computers are scheduled to ship during the first quarter of 1987.

At the high end, the Kaypro 386 line includes a network file server featuring 1 megabyte of RAM and a 1.2-megabyte floppy disk drive. Called the Model N, the file server supports two hard disks with a total capacity of 660 megabytes, according to the company. Kaypro will offer the Model N with an Arcnet or a fiber-optic Ethernet network adapter, which the company already offers as options for its line of IBM PC and AT compatibles.

The Kaypro 386 Model E features 1 megabyte of RAM and a 40-megabyte hard disk drive. The Model A is a floppy disk-based system with 512K of RAM that is intended for the novice. All three machines feature three 16-bit expansion slots and two 8-bit slots. In addition, the Model A supports two 32-bit slots; the Models E and N support only one 32-bit slot. All three Kaypro models include an IBM PC AT-compatible disk controller and are expandable to 660 megabytes of hard disk space and 16 megabytes of RAM.

The Kaypro 386 machines operate at 16 MHz and feature a keyboard-selectable 6-MHz mode to ensure compatibility with the IBM PC AT, according to the company.

Kaypro also announced optional internal and external streaming tape backup systems operating at 5 megabytes per minute. Both products will also be available in the first quarter.

Kay said the company decided to offer Arcnet and Ethernet in its server primarily because they support Novell Netware, which he said is the industry standard for network operating systems.

Koypro's 386 Model E workstation uses on 80386 processor operating at 16 MHz.

CSI to Announce Unix-to-IBM Host E-Mail, File Linkup

SAN JOSE, CA — Communications Solutions Inc. said it will announce today a communications program that allows users to send and receive files and electronic mail between Unix systems and IBM mainframes or minicomputers.

Access/SNADS allows users to tie in with IBM's Systems Network Architecture Distribution Services (SNADS), said Steven Martinez, CSI's vice president of sales and marketing. The communications program features a store-and-forward delivery system, which means that messages can pass through intermediate systems without initiating sessions on each one. It also allows users to control when files and electronic mail are sent. This feature will save companies money because it will allow data to be transmitted at times when rates are low, he said. Also, users can select up to 16 priority levels for sending data.

At first, the product will run on System V Unix, said Martinez, but it could be ported to any computer with a multitasking operating system, he said. Access/SNADS will be available to original equipment manufacturers and multisystem computer buyers in the first quarter of 1987. The cost to OEMs will range from $350 to $400 per node, he said.

The company plans to beta test Access/SNADS early next year and estimates that commercial products from OEMs won't be available for three to six months after the product's release, said John Pickens, senior communications architect for CSI.

— Lisa L. Spiegelman

US Robotics Unveils 3 Asynchronous Modems

Company Also Lowers Price on Pair of 2,400-BPS Products

By Lisa L. Spiegelman

SKOKIE, IL — US Robotics Inc. last week unveiled three asynchronous modems that will be available in December and lowered the price of two 2,400-bps (bits per second) modems.

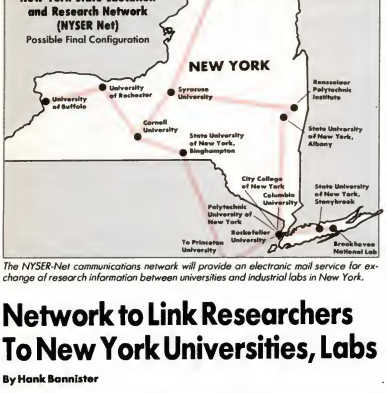
The Courier HST modem, priced at $995, transmits at 9,600 bps essentially by dividing a telephone line into four channels and sending data on all four channels simultaneously. This reduces the time the modem requires to transmit and receive information, said Ira Brodsky, product marketing manager for the company. For example, information that would have required four minutes to transfer at 1,200 bps will require only one minute, he said.

The US Robotics Courier HST modem provides full-duplex, 9,600-bps data communicaiton over voice-grade telephone lines, according to the company.

The Courier 2400e modem, priced at $699, is an upgrade to the company's Courier 2400 modem, said Brodsky. It features Level 3 Microcom's Networking Protocol (MNP) error and flow control protocol, which is designed for users who need to transmit error-free information. The 2400e modem features nonvolatile RAM, which saves a modem's settings from session to session even if the modem is turned off.

US Robotics also reduced the prices of its Courier 2400 modem and its Microlink 2,400-bps modem from $699 to $599.

Designed for small business and the home computer market, the 1,200/300-bps Sportster 1200 costs $149 and has auto-dial and auto-answer features.



The NYSER-Net communications network will provide an electronic mail service for exchange of research information between universities and industrial labs in New York.

Network to Link Researchers To New York Universities, Labs

By Hank Bannister

ROCHESTER, NY — A communications network in the state of New York will soon give academic and industrial researchers there access to the computers of 14 universities and several industrial labs in New York and several supercomputers across the country.

The New York State Education Research Network, also known as NYSER-Net, will provide an electronic mail service for reliable exchange of research information and other data. NYSER-Net will also give researchers access to supercomputers that they can use for projects such as modeling atmospheric pollution, studying aerodynamics, and conducting diverse research in the physical and biological sciences, said Richard Mandelbaum, vice provost of computing at the University of Rochester and chairman of NYSER-Net. Mandelbaum said Mac users eventually could quickly log onto a supercomputer through the network by clicking on an icon.

Later, the network could be used for complex bibliographic searches and transmission of medical images for remote diagnostic purposes, Mandelbaum added.

Installation of the network has begun, with a start-up date set for January, according to William L. Schrader, president of NYSER-Net and executive director of the Cornell Theory Center.

Initially, the network will be designed to carry 56,000 bits of information per second and will later be upgraded to 1.5 million bits per second. NYSER-Net will be connected to the National Science Foundation's backbone network, NSF-Net, which provides access to six federally funded supercomputer centers.

Approximately $4.5 million in funds and equipment has been pledged to construct the network. Most recently, the National Science Foundation announced a two-year, $1.2 million grant to Cornell University for construction of the beginning phases of the network. The state of New York contributed $400,000.

Between $2.6 and $3.2 million of services and equipment have been dedicated by the Rochester Telephone Corp., in Rochester, New York, and the New York Telephone Co., a subsidiary of NYNEX Corp. of New York, said Mandelbaum. Additionally, a number of private companies, including IBM Corp., in Armonk, New York, Eastman Kodak Co., in Rochester, and Corning Glass Works Inc., in Corning, New York, have shown interest in contributing $35,000 per year to become industrial affiliates, thereby gaining access to the network.

PC Video Conference System Works With Local Networks

By Laurie Flynn

SAN JOSE, CA — Compression Labs Inc. announced last week a video conferencing system for use with local area networks.

"The real benefits are that we can extend video conferencing to the desktop and bring down the cost dramatically," said Kathryn Reavis, vice president of marketing at Compression Labs. "Instead of having a room facility that costs $150,000, I can have a desktop facility that costs under $10,000."

The Rembrandt Desktop Video System works with PCs installed on any PC-compatible local area network using IBM PC LAN software with coaxial cabling. The company's existing private branch exchange (PBX) system is used for the conference's audio transmission. The system includes a color video monitor, a camera/speaker module, and a video station controller. A Codec coder-decoder for converting analog information into digital format is also required for transmissions to remote sites, as is a T-1 telephone line.

The video station controller is the proprietary element of the Rembrandt system and accommodates voice-activated camera switching and the transmission of PC text screens, according to Reavis.

The fact that the system works with an installed base of PCs is a big advantage, Reavis said, because users don't have to purchase a new CPU along with the color video monitor.

The Rembrandt system supports up to 64 users, and one video station controller can support up to 22 conferees simultaneously, said Reavis.

The product can be purchased in components or as a complete system. The Rembrandt Codec costs $85,000; the video monitor and controller are $6,500.

Tangent Products Intended to Bridge PC, Macintosh Gap

By Elizabeth Ranney

NORCROSS, GA — Tangent Technologies Ltd. announced two software products intended to bridge the gap between the Macintosh and the IBM PC.

PC Macserve allows PCs and Macintoshes to share Macintosh disk volumes over an Appletalk LAN. Used with Macserve, from Infosphere of Portland, Oregon, PC Macserve allows a volume to be used for storing worksheets, templates, boilerplate text files, or other commonly used files. The product will retail for $100 per machine.

PC Mactxt, with the aid of communications software, transfers an IBM PC word processing file to a Macintosh, where the file is converted into a Macwrite document. The $50 product is installed as a desk accessory on the Macintosh; the PC portion of the program is included in the price.

Tangent also announced an upgrade to its Appletalk network interface card for the IBM PC. PC Macbridge, Version 3.00 is compatible with IBM software and supports Interbridge from Hayes Microcomputer Products Inc. Interbridge links several Appletalk networks together.

The complete PC Macbridge Plus package, which sells for $650, includes three modules. The PC Macbridge ATB module includes a network board for the PC, software that performs network diagnostics, and Appletalk and Postscript printer drivers. The Laserscript Plus module includes software that adds Postscript commands to IBM PC word processing files.

The upgraded version is $25 for Version 2.16 users or $50 for users of older versions, according to the company.

News Briefs

Firm Unveils Gateway Option for Linkup Line

Information Technologies Inc. introduced a Netbios-compatible gateway option to its line of Linkup micro-to-mainframe communications products.

The Linkup Gateway System provides communications between LANs and IBM SNA or bisynchronous hosts.

Information Technologies Inc., 7850 E. Evans Road, Scottsdale, AZ 85260; (602) 998-1033.

Domain 3000 Users Able To Share Net Resources

An agreement between 3Com Corp. and Apollo Computer Inc. will enable users of Apollo's Domain 3000 engineering workstations to share the resources of other networks.

In an OEM agreement worth $4 million over the next two years, 3Com will supply Apollo with Ethernet cards to be used in Domain networks.

3Com Corp., 1365 Shorebird Way, P.O. Box 7390, Mountain View, CA 94039; (415) 961-9602.

Apollo Computer Inc., 330 Billerica Road, Chelmsford, MA 01824; (617) 256-6600.

Xyplex Adds Capabilities To Vax Network System

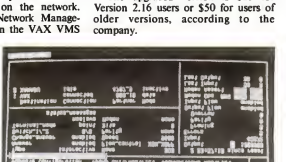
Xyplex Inc. announced it has added management and diagnostic capabilities to its Distributed Network Processing System linking PCs to VAX computers.

The Xyplex System creates a network of PCs, VAX computers, and IBM hosts or other systems, according to the firm. The Advanced Network Management Software, which resides on the VAX, is used to configure and manage the network, monitoring network performance and use.

The software provides data on cable efficiency and rate of message transmission, and observes the performance of specific components on the network. Xyplex's Advanced Network Management Software runs on the VAX VMS operating system, Version 4.4, according to the company.

Xyplex also announced a communications processor that connects Ethernet users to users of Linear coaxial cabling, which, according to the company, is generally used with the Xyplex network system.

Xyplex Inc., 100 Domino Drive, Concord, MA 01742; (617) 371-1400.



The Xyplex Advanced Network Management Software configures networks and monitors network performance and use.

Supermicros

'For the cost of a fully configured Vaxmate connected to a VAX, you can buy a Hyundai PC, a Hyundai Excel car, and six months worth of gas!'

John McCarthy, an analyst with Forrester Research Inc., discussing the cost of computers.

Memorex Unveils 4 Intelligent Workstations

AT Compatibles to Link to IBM Hosts Via 3270 Emulation

By Tom Moran

SANTA CLARA, CA — Memorex Corp. announced recently four PC AT-compatible intelligent workstations that allow users to link to IBM and compatible mainframes through 3270 terminal emulation.

Memorex said that users will be able to toggle between AT applications and 3270 terminal emulation with a few keystrokes. Optional file exchange and multiple session software can also be quickly accessed because, once called, it remains resident in RAM.

Based on the Sperry PC IT and Sperry PC/Micro IT, the 6273 series consists of two small-footprint workstations containing two half-size expansion slots and two larger workstations with five full-size expansion slots available. The compact Model 6273-A includes a color monitor and video adapter that support IBM Enhanced Graphics Adapter color graphics, while the compact model 6273-B has a Hercules-compatible monochrome video adapter. Both compact models measure 15 inches wide by 15 inches deep and weigh 22 pounds.

The larger models 6273-1 and 6273-2 both provide spaces for two half-height storage peripherals, include two serial ports and one parallel port, and can contain up to 4 megabytes of optional extended memory. The 6273-1 comes with a color monitor and video adapter supporting EGA, and the 6273-2 offers a Hercules-compatible monochrome adapter and a choice of green or amber monitor.

Optional software called 3270 File Connection allows the uploading and downloading of files between the micros and a mainframe. Other optional packages include 3270 Multi Connection, which supports multiple host sessions, and 3270 PC Graphics Connection, which emulates IBM's 3279 color graphics display terminal, according to Memorex.

All four machines start with MS-DOS 3.1, 640K of RAM, a 40-megabyte hard disk drive, and a 1.2-megabyte floppy disk drive. They can switch between clock speeds of 6 MHz, 7.16 MHz, and 8 MHz, the company said.

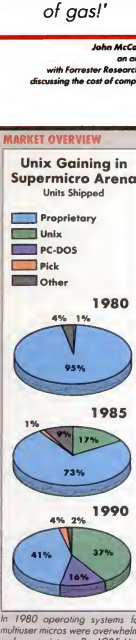
Single-unit prices are $6,095 for the 6273-A, $5,695 for the 6273-B, $6,595 for the 6273-1, and $6,195 for the 6273-2. Memorex said that it expects to ship the systems early in the first quarter of 1987.

Memorex's expandable 6273-1 color workstation consists of a terminal and a deskside tower.

• MARKET OVERVIEW

Unix Gaining in Supermicro Arena

Units Shipped



In 1980 operating systems for multiuser micros were overwhelmingly proprietary. By 1985 Unix had made significant inroads, with the Pick operating system trailing behind. By 1990, according to Infocarp, Unix, PC-DOS, and Pick will account for more than half of operating systems shipped in this market.

INFOWORLD GRAPHIC

CAD Program To Support 3D Modeling

Previously Only High-End Feature

By Edward Warner

LOWELL, MA — This month Aries Technology will introduce a $47,600 PC CAD system that supports the interactive modeling of three-dimensional solids, something until now found only on high-end CAD systems, according to company cofounder Dick Miller.

The Aries Conceptstation is a single-user system consisting of an IBM PC AT with a 60-megabyte hard disk, an Intel Corp. 80287 math coprocessor, 9.2 megabytes of memory, and an attached expansion box. The expansion box contains the system's graphics engine, a set of circuit boards that support interactive solids modeling, and a 32-bit array processor, which speeds the calculations needed for graphics imaging.

Such a sophisticated hardware platform was needed to run Aries' Xenix-based interactive solids modeling program on a PC, Miller said. The software, which is bundled with the system, supports both the creation of three-dimensional drawings — whether of solids, surfaces, or wireframes — and the analysis of those drawings, using such techniques as finite element analysis, he said. Finite element analysis simulates the testing of a design under the conditions of use. Users can increase a load on a finite element image of a bridge, for example, until stress cracks develop and are shown on-screen, the company said. Finite element analysis requires extensive storage and calculation of equations derived from the laws of physics.

Although the software is the first software package for integrated geometric modeling and analysis on a desktop machine, according to Miller, it also offers such ease of use features as pull-down menus. Users activate the menus with a three-button optical mouse that is included with the machine. The system also includes Microsoft's Xenix and MS-DOS operating systems and a 15-inch color monitor with 1,024-by-770-pixel resolution.

The Conceptstation will be announced at the Autofact show in Detroit November 1-14. The company said it can be linked with other Conceptstations via Ethernet or as part of a LAN based on a file server running Aries Information Manager (AIM), a $25,000 relational and run-time database management system that will also be introduced. AIM runs on the Sun-3 workstation line from Sun Microsystems Inc., in Mountain View, California.

A basic version of the Conceptstation without the PC AT, MS-DOS, or the 60-megabyte hard disk will also be sold, priced at $36,500. Both versions will ship in November, according to Aries.

The Aries Conceptstation consists of an IBM PC AT with a 60-megabyte hard disk, an 80287 math coprocessor, 9.2 megabytes of memory, and an attached expansion box.

Kowin Computer to Ship 2 Versions Of 'Kowin Office' Multiuser Micros

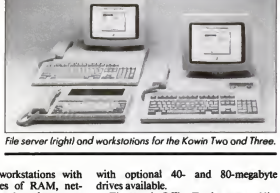
By Tom Moran

MONTEBELLO, CA — Kowin Computer Corp. will begin shipping its Kowin Office Two and Three multiuser micros to coincide with Comdex next week in Las Vegas, the company said.

The Kowin Office systems include integrated voice and data functions and allow IBM PCs and Macintoshes to connect to Kowin workstations, according to Winston Ko, president of Kowin.

Each 68000-based workstation includes an integral telephone with autodialing and has two RS-422 ports for connecting to PCs, Macintoshes, or local printers. The PCs and Macintoshes can work as stand-alone machines or access the central file server and electronic mail system through a Kowin workstation. When finished, PC or Macintosh users can return to their place in their stand-alone applications.

The Unix-based Kowin Office systems both use three 10-MHz Motorola 68000 microprocessors: one to run the operating system, a second dedicated to applications, and a third to control display functions. Each workstation also has its own 68000. Users can run programs while speaking on the integrated telephones and can use the dialing features at any time, according to Ko. The systems can also track telephone calls made, record the time and length of the calls, and bill clients for consulting time or users for phone use.



File server (right) and workstations for the Kowin Two and Three.

Each eight-user Kowin Office Two system offers eight workstations with phones, 2.5 megabytes of RAM, networking hardware and software, a modem, a 1-megabyte 3½-inch floppy disk drive, and a 20-megabyte hard disk with optional 40- and 80-megabyte drives available.

The Kowin Office Two's suggested list price is $15,320. The Kowin Office Three is the same as the Two, except for an additional 16-MHz 68020 processor dedicated to applications, a standard 4.5 megabytes of RAM expandable to 16 megabytes, and a list price of $18,320.

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News Briefs

MAI to Ship Supermicro For Vertical Markets

MAI Basic Four Inc. will begin shipping in December its MAI 3000 multiuser supermicro system. Based on the Motorola 68020 processor running at 16 MHz, it is for vertical markets including manufacturing, health care, construction management, and retail sales.

A basic 3000 system includes 1 megabyte of RAM, a 44-megabyte disk, a one-quarter-inch tape drive backup, six serial ports, and one parallel port, and lists for $19,950. Users can add serial ports to a total of 34, and can expand the RAM to 6 megabytes and the disk capacity to 360 megabytes.

MAI Basic Four Inc., 14101 Myford Rd., Tustin, CA 92680; (714) 731 5100.

Motorola Super PC to Use V/68 Operating System

Motorola has adopted AT&T's System V/68, Release 3 as the standard operating system for its 68020-based supermicros, and has announced six database management programs for those machines.

The new operating system offers users networking capability, a menu-driven interface, and increased speed, according to Motorola. System V/68, Release 3 allows different computers to share data, files, applications, and peripherals without specialized utilities.

The six database packages from Informix Inc. of Menlo Park, California, include C-ISAM, a file management system; File-It, an interactive file manager; Informix-SQL, a sequential query language; and Informix ESQL/C, a C language application development utility. Informix-4GL is a fourth-generation language relational database management system for designing applications, which works with 4GL Runtime. C-ISAM and File-It cost $679, Informix-SQL costs $2,280, Informix ESQL/C costs $1,695, Informix-4GL costs $3,520, and 4GL Runtime costs $1,695.

Motorola Computer Systems Inc., 10700 N. De Anza Blvd., Cupertino, CA 95014; (408) 864-4907 (for Informix packages) or (602) 438-3486 (for System V/68, Release 3).

Overheard...

'The industry today is filled with carnage, confusion, and cost cutting — a high-tech killing field.'

Mike Spindler, president of Apple Computer International, speaking on the international personal computer market.

Apple, Ashton-Tate Choose to Bypass Comdex

Companies Look To Regional Shows for Targeted Markets

By Rachel Parker

While most of the microcomputer industry's major vendors will join a host of unknowns at the fall Comdex show in Las Vegas, some industry leaders have chosen to spend their promotional dollars elsewhere.

Apple Computer Inc. and Ashton-Tate, both of which have paid sizable, nonrefundable deposits for floor space at the show, will not exhibit there. Officials from both companies cite the same basic reason for pulling out: The Comdex audience mix does not meet their marketing objectives.

"Our current marketing needs can be met with smaller regional shows and Apple-sponsored shows such as Macworld," said Apple spokeswoman Marianne Lettieri. "We felt our resources would be better applied to more focused shows."

Like Apple, Ashton-Tate is pleased with regional shows and those that have very specific target audiences.

"Our experience at recent Comdex shows is that the audience is much less retailers and much more industry vendors," said Suzette Cavanaugh, the director of advertising and promotions for Ashton-Tate. "We no longer feel that exhibiting at Comdex is cost-effective for us."

Some smaller companies have also declined to exhibit at the largest computer show in the country.

For the second year in a row, Thinktank and More publisher Living Videotext of Mountain View, California, will make an appearance at the November 10 to 14 show but will stay off the main floor.

"After spending a huge amount of money for spring Comdex in 1985 and getting little in return, we decided to speak at Comdex and go to the parties, but not reserve booth space," said president Dave Winer.

Despite these criticisms and notable absences, about 1,200 vendors will exhibit at the show this year, according to show sponsor The Interface Group, in Framingham, Massachusetts. Many of the vendors who will attend said the show is a valuable opportunity to focus their marketing efforts and showcase products.

"Comdex has become the show of the industry," said Ed Juge, director of market planning for Tandy Corp. Comdex is the only national show where major companies display their products, he said.

"It is easy for us to lose touch with our dealers because of our location," said Pete Peterson, executive vice president of Word Perfect, in Orem, Utah.

The company uses both the spring and fall Comdex shows to touch base with its regional sales representatives and dealers and hold sales and training meetings. "It also gives management a chance to brainstorm and look at other vendors' products," Peterson said.

Lotus Development Corp., which last year called fall Comdex a "zoo," will nonetheless return to the show floor this year to spotlight its Freelance Plus program, which it hopes will establish the company in the graphics market.

"The introduction of a new product makes Comdex a wonderful opportunity to let people take a closer look at the product," said Dave Tarrant, general manager for The Interface Group.

Even those who have decided not to exhibit — Ashton-Tate, Apple, and Living Videotext — are still planning to be part of Comdex, through panel discussions and meetings with special accounts and dealers.

Fall Comdex Evens Out

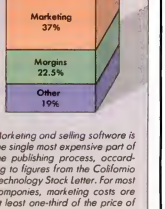
Although still declining from it's heyday in 1984, attendence at Comdex seems to be leveling out at about 80,000 attendees. Around 1,200 vendors are expected to participate in the annual Las Vegas trade show November 10 through 14.

SOURCE: THE INTERFACE GROUP

G. DORENKAMP/IDG

• PRICING

The Costs of Publishing Software



Marketing and selling software is the single most expensive part of the publishing process, according to figures from the California Technology Stock Letter. For most companies, marketing costs are or least one-third of the price of the package, while the cost of the disks, manuals, etc., totals about 20 percent or less. Research and development appears os port of the miscellaneous costs in the "Other" category.

IDG/WORLD GRAPHIC

• SUPPORT

Firms Turn to Independents for PC Support

Corporations Increasingly Dissatisfied With Vendor Service

By Lisa L. Spiegelman

In August, Lotus Development Corp. and Ashton-Tate announced they would begin charging users for services beyond basic telephone support. As a response to those and similar moves, corporate PC users are turning to companies that specialize in computer support.

Already, corporate users dissatisfied with support offered by their vendors are using independent support companies, according to Emil Flock, president of Computer Hand Holding, a 4-year-old computer and consulting company in San Francisco. Since January, Computer Hand Holding has been offering technical support for companies and users who want immediate response to hardware and software support questions. Although the price for support varies with the number of programs supported and a monthly allotment of support time, support is generally about $60 per hour. Flock's support business has already grown, which he credits in part to the shifting emphasis away from support functions by major vendors.

At Greyhound Corp. of Phoenix the support staff was overwhelmed by requests for information, and computer users got frustrated calling vendors for support, according to Gene Zylstra, director of automated office systems for Greyhound. And because the company found it had to either pay for support through a vendor or an independent company, it opted for the "best answer," a company that could offer support for all its software, said Zylstra. Recently, the company channeled all of its support through Micro Support Resource Corp.

Micro Support Resource Corp. (MSR) of Atlanta offers several support programs, ranging from support for one product, such as Lotus 1-2-3, which would cost $100 per year, or per 20 calls, to support for all 15 products MSR supports for $300 per user per year, or per 60 calls, the company said.

Such independent support services offer the benefits of addressing a multitude of hardware and software combinations, offering corporate users a single source of advice on a number of different packages, according to Bill Kirwin, program director for the personal computer research advisory service for the Gartner Group, a Stamford, Connecticut, market research firm.

Some publishers see unbundling support as a risky proposition. As more corporations turn to third-party support companies, software vendors are bound to lose contact with their customers, said Kevin Howe, president of Dac Software Inc. of Dallas. Dac, the publisher of the Dac Easy line of software, charges $50 per hour for telephone support.

"We didn't want to put up any fences between us and our customers," said Rob Campbell, president of Sunnyvale, California-based Forethought Inc., which does not charge for support. He estimates that 80 percent of the new features in Filemaker Plus came from customers' questions on the support line. "I think that the minute a company quits talking to customers, a company will lose touch," he said.

The customer support lines are the first place that customers vent their product opinions and desires, said Dave Winer, president of Living Videotext Inc. of Mountain View, California. Living Videotext does not charge for support. "When they are telling you they want a feature, they are telling you what they will pay money for."

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Kathryn H. Wilson, Raychem Corporation

"Javelin was selected for its ease of use in entering and importing data, performing consolidations, defining reports, producing graphs, and automatically debugging models."

Timothy J. Lee, Price Waterhouse

"I must confess to finding Javelin vastly superior for much of what I want to do. I'm doing my income tax on it this year and it is fantastic."

William F. Zachman, International Data Corporation

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Worksheet/Chart Views:
Any product can draw a graph. Only Javelin lets you use graphics to enter data. The numbers appear instantly in your worksheets. You can have as many worksheets as you want, all dynamically linked.

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Only Javelin offers a Diagram View that helps you trace the logic of your model—in both directions.

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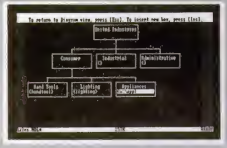

Org Chart:
Javelin's unique Rollup Building Block does hours of multi-department consolidation work in minutes. This chart defines your consolidation hierarchy. Javelin does the rest!

Micah Fends Off Takeover, Files For Chapter 11

By Hank Bannister

SAUSALITO, CA — One day after being acquired by Solitaire Corp., Macintosh hard disk drive maker Micah Distribution Inc. filed for Chapter 11 bankruptcy protection to fend off what Solitaire management called a hostile takeover bid.

Solitaire of Hayward, California, filed bankruptcy papers for Micah on September 26 in the U.S. Bankruptcy Court, Northern District of California, Eureka Division. The move was made to resolve a dispute with a major supplier and defl ect a buyout attempt by that vendor, according to John Martin-Musumeci, chairman of both Solitaire and Micah.

The creditor, Software Logistics Corp., said it was surprised by the move. Micah owes the company more than $100,000 for 20-megabyte internal Macintosh hard disk drives it supplied Micah, according to Software Logistics president Steve Weinstein.

"One of the remedies we have in our contract is if they don't pay over a certain amount of time, we can sell to anyone willing to purchase the goods," said Weinstein. But he said Software Logistics doesn't want to take over Micah.

Micah's shipments to dealers slowed in August and virtually stopped in mid-September, but it has not laid off any of its employees, said Tony Roumell, president of Micah. The company is working on bringing the manufacturing of the disk drives in-house, he added.

"We will be shipping again in mid-November and shortly after will bring out a new 30-megabyte internal drive," Roumell said.

Solitaire intends to bring Micah out of bankruptcy quickly and to continue to support customers in the meantime, said Martin-Musumeci. He claimed creditors would receive 100 cents on the dollar after the reorganization.

Martin-Musumeci and Solitaire have used Chapter 11 protection as a business strategy previously. Currently, the company owns two other companies operating under the provisions of Chapter 11, Schuchardt Software Systems Inc. of San Rafael, California, and Software Galeria Inc. of San Jose, California. In August, another Solitaire subsidiary, Software Centre International of Hayward, California, emerged from Chapter 11 protection.

Televideo Decides To Cancel Planned Merger With Alpha

Saying the acquisition was not a "good fit," Televideo Systems Inc.'s board of directors voted in late October to cancel plans to acquire Alpha Microsystems.

"When the new board looked at the acquisition, it felt that Alpha Microsystems was not the perfect candidate," said Televideo spokesman Gary Mistlin. Televideo's board of directors, which includes three new appointees, did not find any real problems with Alpha Microsystems but felt it did not meet all the criteria for a merger, he said.

Although disappointed with Televideo's decision, Alpha Microsystems is proceeding with business as usual, said president Richard Cortese. "My impression is that we got caught up in a series of changes at Televideo, including changes on the board of directors. It was just bad timing."

On September 15, the two companies agreed in principle for Televideo to acquire Alpha Microsystems, paying $8 per share. Alpha Microsystems' management recommended the Televideo deal to shareholders over a tender offer made by minicomputer maker Point 4, which offered about $4 per share. After Alpha Microsystems accepted the Televideo offer, Point 4 withdrew its offer, Cortese said.

— Rachel Parker

International News

Norsk Data to Launch Its First AT Workstation

OSLO, Norway — Industry observers here expect Norsk Data AS, Norway's leading computer vendor, to launch a PC AT-compatible workstation. Internally code-named butterfly, the station will be the minicomputer maker's first entry into this market.

U.K. Firms Join to Develop Instantaneous Graphics

LONDON — In a joint venture, Prefis Ltd. and Thermoteknix Systems Ltd. have developed the first desktop publishing system that displays instantaneous graphics without input from a video camera.

Amstrad Denies Problems With Its PC Compatible

LONDON — Amstrad Consumer Electronics reacted angrily to recent reports that there are technical problems with its PC1512 IBM PC compatible, and it complained of "spoiling tactics in the marketplace."

Computer news from around the world is compiled from CW Communications Inc.'s International News Wire service.

See Us At COMDEX/FALL Hilton Booth H7532

LIGHTSPEED PASCAL™
THE FUTURE REPEATS ITSELF.

JANUARY 1984. (Cupertino, California.)—Apple introduces the Macintosh.* At the press conference, six software developers, including Microsoft and Lotus, announce their commitment to the new machine. Among them is THINK Technologies, a start-up developer of advanced systems software.

THINK announces Macintosh Pascal. It is a breakthrough. For the first time, a practical interactive interpreter is available for Pascal. People can now learn to program in a whole new way. They can look inside their program and get immediate feedback. Incorporating the Mac interface in this programming environment, THINK creates a new future for the Macintosh in education.

Writing in The New York Times, Erik Sandberg-Diment says "MacPascal alone might be reason enough for the college-bound science or engineering major to purchase" a Mac. The product becomes a standard in university computer science courses. Users are enthusiastic. But in time they demand even more from THINK.

AUGUST 1986. (Boston, Massachusetts.)—THINK introduces Lightspeed Pascal at MacWorld Expo. It is a breakthrough. It utilizes new compiling and linking technology previously available only with THINK's Lightspeed C. But it goes even further. Like Macintosh Pascal, it provides the same ability to look inside a program, but without the need for an interpreter. It offers blinding speed and the ability to build large programs. The response is overwhelming. In the first two weeks THINK sells thousands.

Lightspeed Pascal marks a turning point in programming the Mac. It has all the features that made Macintosh Pascal a standard. And much more. Now users can create real standalone "double-clickable" applications and desk accessories. THINK creates a new future for Macintosh programmers.

Lightspeed Pascal is priced at $125. It is not copy-protected. The package includes a 600-page manual with extensive index. It provides complete Toolbox/OS support. It is compatible with Macintosh Pascal and Lisa Pascal.

The future is here. Order Lightspeed Pascal now.

Please send me Lightspeed Pascal today. Enclosed is $ _____ for _____ copies. ($125/copy)

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Tech Street

By John Gantz

IBM Finds Itself in the Later Pages of 'The Great American Novel'

In the greatest novels, a protagonist's denouement always stems from within. Often, life after denouement isn't what the protagonist expected. Once the environment has changed, a leading character becomes a lost soul.

IBM, the greatest of computing protagonists, is finding out what it means to live in the later pages of The Great American Novel. The company now stands puzzled in the midst of an environment buffeted by new technological and economic winds. IBM's current fiscal worries are of a long-term nature.

Some of the teeth in IBM's trap:

- Incompatible architectures. As we said last week, connectivity now adds more value to the computing process than mere increments of processing power. IBM has not one but many installed bases, each with a substantial architecture-dependent software investment. IBM has the most to lose by rationalizing its architecture radically. IBM might never recover from abandoning a few of its incompatible architectures. The fact that it has embarked on just such a path — by extending 20-year-old 370 architecture downward — seems a move made more out of desperation than brilliant strategy.
- Lack of a rental base. It was IBM that realized early in the game that computing was such a scary activity that more units could be shipped if users had the security blanket of a rental relationship. As a byproduct, IBM was able to erect a major barrier to entry — the cost of a rental base — for competitors. IBM also had much better visibility into future revenues. During the last six years, however, IBM converted that rental base to purchase. The company got some cash — at the price of account control.
- Specialization in accounting functions. For 30 years the company has been selling computers primarily to automate the big accounting functions — general ledger, accounts payable, payroll, inventory, etc. What happens once all the accounting functions are automated in most businesses? In an era in which price performance is increasing tenfold every five years, the only way to increase unit shipments enough to increase revenues is to exponentially expand applications demand for computing power. This is possible in the scientific realm but very difficult in the commercial realm. You can't ask a customer to increase the number of invoices it processes by a factor of 10, so you've got to toss computing power at overhead functions, like communications and network control. But people will shop on price when all they're getting is better overhead. This is another reason the scientific computing business has healthy prospects.
- Batch processing tradition. Much of what IBM computers have automated are activities that take place off-line from the critical processes of the companies themselves. Apple Computer recently bought a giant Cray supercomputer as part of a process to speed computer design and software development. It's worth millions — perhaps billions — to Apple to decrease its time to market for new computers. A 20 percent reduction in design time might yield a 200 percent improvement in revenues. A 20 percent reduction in costs to produce paychecks will only save 20 percent of those costs. IBM computers are in positions of critical importance in many industries — such as brokerage, banking, and distribution — but miss in some other industries, such as manufacturing.

IBM's possible reactions to its predicament range from the more-of-the-same category to the truly radical. The company will surely make a play in scientific computing and will continue to improve connectivity. It will also grudgingly begin to support open systems standards. But then it might also begin gaining market share through acquisition — perhaps buying up key customers along with technology companies. The company is already deep in a project with Merrill Lynch and Monchik Webber for the provision of on-line data services.

So how will our industry change? Well, what happens to MS-DOS when the IBM VM 370 operating system is on an 80386-based desktop system? What happens when IBM starts to maintain or integrate equipment from other vendors selectively? What happens when IBM has trimmed its work force and is once again making a 13 percent after tax margin?

Life gets tougher for everybody else, that's what. Rest assured that IBM will, sooner or later, solve its problems and exit the tender trap of its historical momentum. DEC has done it, and Apple is doing it. IBM won't be too far behind.

John Gantz is editor of the Tech Street Journal, a newsletter on the high-tech stock market and business performance. The views expressed are his own.

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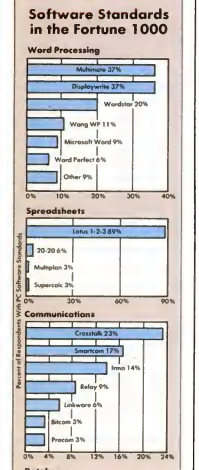
In Upcoming Issues:

- **As concerns about computer security increase, a number of software packages focusing on the security of stand-alone microcomputers have recently hit the market.**

• MANAGEMENT UPDATE

Software Standards in the Fortune 1000



Fortune 1000 corporations that have established corporate-wide standards have standardized on the following word processors, spreadsheets, communications, and database software. (figures will add up to more than 100 percent, as firms were allowed to list several standards.)

SOURCE: FORRESTER RESEARCH INC

• CASE STUDY

GE Stirs Industry With Ambitious Site Licensing

Strategy Designed to Offer Users Standard Set of Programs

By Lisa L. Spiegelman

General Electric Co. is making waves in the microcomputer industry with an ambitious site-licensing strategy that promises both to offer a standard set of programs to its 25,000 users worldwide and to take into account future products in license negotiations.

Though Fairfield, Connecticut-based GE said many suppliers were at first less than enchanted with GE's PC Toolkit strategy, the program, launched in January, has turned into a success.

Early this year, GE negotiated a site license with Office Solutions Inc. for its Office Writer package. At the time, few such word processing programs came with a thesaurus, but GE thought a thesaurus would soon be part of most word processing packages. So the company sought to define exactly what would happen to the terms of the site license if thesauruses became de facto standards and the next version of Office Writer did not include one, said Robert Tuchman, GE's contracting agent for software for corporate sourcing.

"The big issue was, 'Were we going to have to go out and negotiate a completely new license if the next release did not include a thesaurus?' " Tuchman said. "We can't expect software vendors to give away future products. But we do have to have products that represent the state of the art, and we have to have an easy migration path to those products."

Prior to adopting the program, GE had only one or two corporatewide software licensing agreements, according to Tom Hattier, GE's manager of technology procurement and deployment for corporate information technology. This year alone, under the strategy, GE has signed six major agreements for its PC Toolkit, with plans to add at least three additional programs. The company has signed agreements with Computer Associates for Supercalc; Office Solutions for Office Writer; Alpha Software for its Alpha/three database program; Mathsoft for Math-CAD, an engineer's scratch pad; and for three utility programs: Take Two from United Software Security, Emutec from FTG Data Systems, and PC Privacy from MCTEL.

"Initially, many of the vendors were skeptical," Hattier admitted. "They were afraid that if they made deals, they would lose potential future business."

But for GE, the issue of site licensing is crucial to future business, and the company takes a hard look at how the market might change in the future when it sits down at the bargaining table.

While the first agreement with Office Writer took several months to negotiate because the concept was so new, subsequent negotiations took less time, according to GE. Part of the reason was publicity by the suppliers, according to Tuchman, who credits their statements affirming the benefits of licensing for trimming to 30 days the time to complete GE's most recent agreement with Alpha Software.

"All the issues were on the table and easy to understand," said Tuchman. "We finally had it down to a simple concept."

HANK SKALL

According to Tom Hattier, GE's manager of technology procurement and deployment for corporate information technology, site licensing is crucial to the firm's future business.

Before GE decides to attempt a license negotiation, it takes several important steps. First, it establishes its software needs. Next, it evaluates for 30 to 60 days all products that meet GE users' minimum requirements and narrows the list down to two or more potential packages.

However, that process isn't always smooth, according to Hattier.

"We had a fair number of Lotus 1-2-3 users already installed," said Hattier. "So when we did the spreadsheet evaluations, those users were so heavily entrenched with 1-2-3 that regardless of the merits of Supercalc, they preferred Lotus."

This particular case was easier to solve than others because there was enough demand for Supercalc to justify a corporate site license and still let several divisions retain Lotus 1-2-3, said Hattier. However, since Lotus 1-2-3 is not covered under a corporate site license, each division has to pay the update cost.

"That price alone was enough to convince some divisions to switch to Supercalc," Hattier said.

The next step is to approach the software vendor, according to Hattier, who says that terms specifying the cost of the programs, support, maintenance, and the mechanics of distributing the software must all be discussed in detail.

HANK SKALL

"We have to have products that represent state of the art," said Robert Tuchman, a General Electric contracting agent.

One significant issue for a large company such as GE — which has more than 200 separately run businesses — is the terms of the license in case of a divestiture or acquisition, Hattier said.

In fact, this issue came up shortly after GE signed its site license with Office Solutions when GE acquired RCA, according to Tuchman.

Another part of the negotiations is determining the most effective means of program distribution, said Hattier. To accomplish this, GE is utilizing the 200-plus PC coordinators already in place in the company. These coordinators are a crucial link in the distribution chain, he said.

"The success of the program is due in large part to the these individuals who distribute the software and provide local product support," said Hattier.

Hattier also noted that GE takes into consideration the potential problems involved if one of the site-license suppliers should go under. To protect GE in such cases, each contract states those conditions under which GE would preserve its rights to the program.

While GE sees clear benefits to site licensing, such as protection against liability for illegal copies, easier distribution, and lower overall cost, there are still questions about whether a corporatewide site license is the best approach.

"Because we have more than 200 separately run businesses, it's difficult for us to make a commitment to a product," said Tuchman.

Surprisingly, money is not the most important factor in a site license, said Hattier. "The more important factors are that we are simplifying and reducing the barrier for our employees to be more accustomed to using personal computers. We are assuming that if our employees learn how to utilize personal computers, their long-term productivity will increase," he said.

Resources

November 2-5, Atlanta: The National-American Wholesale Grocers' Association will present the "1986 NAWGA Computer Conference and Expo." Sessions focusing on the use of personal computers in the grocery business will highlight the event. Call: (703) 532-9400. Location: Westin Peachtree Plaza Hotel & Market Center. Admission: ranges from $30 for one day to $595 for the full conference.

November 2-5, Phoenix: "Adapso 65th Management Conference," sponsored by the Arlington, Virginia-based software industry trade association, will feature talks and workshops for executives in the software industry. Speakers will include John Akers of IBM, Edward Esber of Ashton-Tate, Bill Gates of Microsoft, and Fred Gibbons of Software Publishing. Call: (703) 522-5055. Location: The Pointe Tapatio.

November 2-6, Dallas: "The Fall Joint Computer Conference '86" will offer an international forum for leaders of the computer technology field and corporate and government executives. Call: (800) 367-7100. Location: Dallas Infomart.

November 2-7, Los Angeles: "Managing the Information Resource" is a seminar for information processing professionals, sponsored by the University of California. For further information, contact Office of Executive Education, Graduate School of Management, University of California, Los Angeles, CA 90024.

November 3-7, Chicago: "CADCON II," a trade show focusing on computer-aided design will be held in Chicago but transmitted nationwide by live satellite teleconference feed on the Computer Distribution Network, the nation's first commercial satellite distribution network for the computer industry. The show will cover all CAD systems from microcomputers to mainframes. Contact CAD Design Systems Inc. at (312) 882-0114 for further information.

November 4-6, Boston: "Electronic Image '86" will feature micro and mainframe products for electronic publishing, such as laser printers and optical disk storage devices. The conference, sponsored by the Institute for Graphic Communications, will include desktop publishing. Call: (617) 267-9425. Location: Sheraton-Boston Hotel. Admission: $495.

November 4-6, Chicago: On-Line '86 is a conference and exposition aimed at users of on-line services. It is being sponsored by On-Line Inc. Topics will include CD-ROM, user training, and new databases. Call: (203) 227-8466. Location: Palmer House. Admission: $375.

November 5-7, St. Louis: The North American Telecommunications Association is sponsoring "NATA 86," which will highlight the newest designs in telecommunications to volume corporate and governmental buyers. Call: (800) LET-NATA. Location: The Adams Mark Hotel.

November 5-7, Los Angeles: The Second Annual Technology Opportunity Conference, called "Optical Storage for Small Systems," will bring together vendors and users to discuss the development and applications of the new technology. Call: (415) 681-3700. Location: The Biltmore Hotel.

November 10-14, Las Vegas: The Interface Group Inc. will present Comdex/Fall '86, a conference for manufacturers, dealers, and distributors of microcomputer products. The conference will feature seminars on topics such as desktop publishing and CAD/CAM. Call: (617) 449-6600. Location: Las Vegas Convention Center and West Hall, Caesars Palace, Las Vegas Hilton Hotel, MGM Grand Hotel, and Riviera Hotel. Admission: $195; $40, exhibits only.

November 11-13, San Francisco: CMC '86 is a computer and management show for contractors. Vendors will exhibit personal computers, software, and telecommunications systems for the construction business. Call: (312) 397-7744. Location: Moscone Convention Center. Admission: $245; $25, exhibits only.

November 17-18, Boston: "Electronic Publishing Market Analysis Conference," sponsored by market research firm Dataquest, will provide important industry information on market shares, shipments, and revenue in the desktop publishing market. Speakers at the conference will focus on users' needs and how those needs are affecting the electronic publishing industry. Call: (408) 971-9000. Location: The Westin Hotel Copley Place. Admission: $695; $495 for clients of Dataquest.

November 17-19, Cambridge, MA: Decision Support Technology will feature a conference called "Strategic Issues in Managing Information Technology: Achieving Significant Improvements in Productivity and Effectiveness." Topics to be discussed include software productivity, quality, and reliability; artificial intelligence; and user computing and decision support. Call: (617) 354-6400. Location: Hyatt Regency. Admission: $995.

— Alice LaPlante

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The Corporate View

By Hank Kee

It's No Longer Business as Usual in the World of Computer Marketing

Who are the decision makers when it comes to buying computing products and services in the corporate environment? It is no one person, but it is everyone and anyone.

The evolution of the centralized MIS shop into a distributed or departmental MIS organization has been made possible by smaller yet ever more powerful computer "black boxes." Monolithic DP staffs are also migrating into the departmental computing centers of a corporation. Minicomputers are handling computing needs that are comparable to mainframe systems of just a few years ago. Similarly, the microcomputer straddles the domain of the minicomputer. The economy and power of the smaller computing systems has spawned a rapid rise in distributed systems. Distributed systems are less complex to implement and maintain than one very large, all-encompassing system intended to be all things to all people.

The midsize computer market has witnessed very large growth in recent years. Digital Equipment has been very successful at the expense of IBM. IBM's offerings of System 38s and 36s, the 8100, and the Series 1 are confusing and represent many different statements of direction. The successful marketing of the office system has evolved into the departmental DP system. The midsize system represents a major growth for computer sales. The recent announcement of the 9370 series by IBM only serves to place a greater emphasis on the anticipated development of departmental systems.

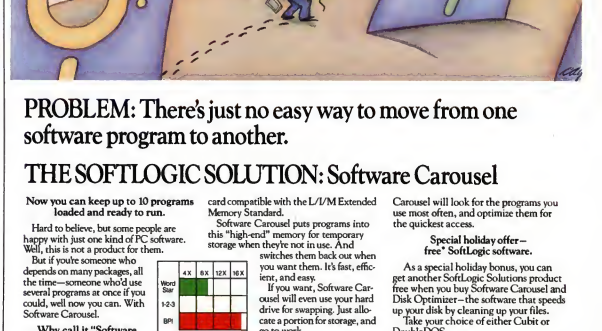
The personal computer as we know it today will be supplemented by more powerful processors. The old standby Intel 8088 need not be replaced. Who needs more horsepower to do word processing? But it won't be that long before an operating system will take advantage of the architecture of the Intel 80386. It may be an extended MS-DOS or a very friendly Unix system. An Intel 80386-based system running at 4 million instructions per second would open our horizons to another wave of personal computing. Compaq's early jump into the 80386 market with its proclaimed "industry standard" system should accelerate new and real development in personal computing. It is not too far-fetched to envision the 80386 evolving into intelligent workstations and small departmental DP processors. This trend toward decentralization will continue. It will have a major impact on how the computer will be marketed.

How does one sell one's wares when the buyers are no longer concentrated in a centralized MIS organization? Relationship marketing is going the way of the dinosaur. No longer can sales personnel expect to compete for sales based on who bought the best lunch or hosted the last great golf outing. The old-time DP manager often purchased a piece of the salesperson's soul when a major system purchase was made. A salesperson was expected to provide the umbrella support from the manufacturer. Home-grown systems are now giving way to off-the-shelf systems. The days of order taking are evolving into commodity selling. This will give way to real marketing. The decision process for purchasing is no longer clear cut. A multivendor shop is becoming a common sight in most corporations. It is no longer business as usual.

The selling of computers will be more conventional and not all that different from the selling of soap. There will be heavier advertising in the TV and radio media. Product consciousness will be important. IBM was able to command over 70 percent of the market in the sales of mainframes, but this has not been the case for minicomputers and microcomputers. This will affect greatly the IBM marketing organization. If IBM does not change, it will be left behind as we move into a different era of computing. Big boxes will continued to be sold, but IBM will not have the impact it had in the good old days when the mystique of the high priest prevailed.

The up-and-coming would-be managers of tomorrow are much more computer literate than a generation ago. The concepts and application of computing to the business strategy are a standard part of the curriculum for an MBA degree. These students are no longer shy about purchasing a label that does not have an IBM logo. These students are more familiar with the tools and are less dependent on the manufacturer to provide support. The mystery of computing is fading into the past.

Hank Kee is vice president-manager of Technology Research and Evaluation in the Information Technology Management area of New York's Chemical Bank. The views expressed are his own.



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From the Editor

We've all heard that with freedom comes responsibility. The time is at hand for everybody to become responsible about software piracy.

Last week in this space, we applauded the efforts of companies that removed copy protection after realizing it penalized legitimate customers. And we criticized two companies that have yet to come to that realization.

But there is a reason software companies turned to copy protection in the first place. These companies were afraid of having their investments in programming, marketing, and distribution thwarted by dishonest people who bought one copy of a program and distributed illegal copies freely.

It is absurd to suggest that this doesn't happen. Everyone knows someone who has pirated software. And every honest computer user must confess to the allure of getting a $695 software package free of charge. But — morality aside — consider the very real costs of piracy.

At the very least there is a monetary cost. Businesses work on a profit margin, and the profits lost to thieves are recouped from the paying customers. The guy down the hall who is doing a friend a favor costs you money every time you buy a program.

At the extreme, there is a huge potential cost in terms of the quality of programs that will make it into the marketplace. It is fantastically expensive to market software, to win shelf space, and to attract attention through all the noise. Many creative programmers can barely afford that cost *without* the added expense of losing profits to pirates. It is possible some will simply forego the effort because the added burden of piracy tips the balance sheet from profit to loss.

There is no need to discuss the moral issues of piracy, other than to say that it is thievery, and thievery — even when it is impersonal and electronic — is wrong. The friend or associate who "gives" a pirated program away is tainting not only himself, but the receiver as well.

All of us who pressured software makers into removing copy protection — and into exposing themselves to increased theft — now have a responsibility to protect those companies from thieves.

To that end, every business should initiate a formal policy to control software theft. The policy should specify precisely under what circumstances people may acquire and use software the company has purchased. It should limit the copying of programs to making legitimate backups for archival purposes, and it should outline harsh and specific penalties for any illegal copying.

Individuals must treat pirates like the thieves they are. We must live up to the trust placed in us by software makers and force the dishonest few to stop violating an honor system we fought so hard to win.

Jonathan Sacks

Editor-in-Chief

To the Editor

ON PROJECT WORKBENCH

Your Special Report on project management software (October 6) contained some glaring inaccuracies regarding Applied Business Technology's Project Workbench, Release 2.22.

First, as of June, Project Workbench, Release 2.2 was issued. It included 52 major enhancements. Release 2.22 now includes local area network support, subproject capability, significant enhancements to the dependency network, expanded scheduling and reporting capabilities, expanded user interfaces, and support for additional hardware, including plotters.

Second, the checklist shown on pages 50-51 erroneously states that the PERT chart is not a feature of Project Workbench. In fact, Workbench has extensive Critical Path Method capabilities, which we believe are superior to PERT-design charts. This CPM feature identifies the tasks in critical path, flags inconsistencies in the schedule, and calculates the earliest start date used to generate schedules automatically. This is a PERT feature, but your chart is misleading.

Third, we dispute the accuracy of the project management software market shares chart depicted on page 48. According to the 1986 Software User Survey conducted by *Software News*, ABT's Project Workbench has garnered a 10 percent market share in the last two years. In addition, Project Workbench is consistently rated the best-selling project management software by *Software News*.

Our Project Workbench software package is used in more than 1,000 organizations, including Fortune 500 companies and government agencies, and has a loyal following in these areas as evidenced by the Workbench User Groups that are forming in these companies, as well as local Workbench Groups forming in places like New York. In many cases, Project Workbench has become a de facto standard adopted by entire departments, divisions, and corporations.

Danek Bienkowski, Vice President
Applied Business Technology Corp.
New York

There's a technical and marketing distinction between CPM and PERT. CPM is a method for tracking the critical path of a project. Project Workbench uses a PERT chart with the critical path identified within it. The confusion arose from our researchers being told by two people at ABT that Project Workbench did not have a PERT chart but used CPM. Project Workbench is scheduled for a future full review.

As to the projected market share figures, the chart printed on page 48 accurately reflects the information provided by Infocorp of Cupertino, California. Infocorp stands by its figures. — Editors

TELENET'S NUMBER

In the article "Telenet to Expand Access to Low-Cost Service," in the October 13 issue, reference is made to Telenet's toll-free bulletin board number, which PC users and businesses can call for more information about PC Pursuit — Telenet's new low-cost, long-distance data communications service.

However, the telephone number was not stated in the article. It is (800) 835-3001 and can be accessed 24 hours for more information and to register on-line for PC Pursuit. Additional information can be obtained by calling (800) TELENET (voice) from 8 a.m. to 5 p.m. Eastern time.

Cliff Cummings, Manager
Public Outdial Services
Telenet Communications Corp.
Reston, VA

CORRECTION

"SPSS Unveils 'Value Plus' Upgrade Plan" on page 9 of the October 20 issue should have indicated that the promotion is limited to the company's personal computer software only. SPSS's programs for larger systems are not affected.

Please write to Letters, InfoWorld, 1060 Marsh Road, Suite C-200, Menlo Park, CA 94025 (Compuserve: 73267,1537, The Source: TCK939, or MCI Mail: 259-4127). Include your name, address, and daytime telephone number. Letters selected for publication will be edited for length and clarity.

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Window With A View

By Erik Sandberg-Diment

CD-ROM and PC Technology Could Link the Video-Charmed to the Past

Some years ago I found myself tracing the trails of Somerset Maugham and Robert Louis Stevenson. On the islands, their timeless South Pacific had vanished within the space of a couple of decades, buried beneath mopeds, plastic shoes, and rock beer commercials.

Nowhere was this more evident than in American Samoa. Passing an open-sided schoolhouse ancestral, I noticed the children sitting quietly before a television screen that was utterly blank. Passing by the same room some hours later, I observed those same quiet children staring at a still blank screen.

Later, conversation with someone apparently knowledgeable about education on the island elicited the information that this paradise had been beset by a school budget problem to which the only solution had been television broadcasts supplying the village schools with "teachers." On this particular day there had been a broadcasting equipment failure. All the same, the children had remained placidly staring at nothing.

I was reminded of this incident by a recent report from the Solomon Islands — that monument to the effect of an advanced technology of destruction — transformed from a tropical wonderland to a graveyard for military hardware during World War II. There Prime Minister Psaias Wingti of Bougainville banned broadcast television, hoping to forestall yet another techno trauma. In any "civilized" society, such a policy would be unthinkable. And, frankly, while I sympathize with the Bougainville ban, this hastily constructed Maginot Line is surely doomed to failure, although it may lead to increased sales of VCRs and personal computers in addition to television sets.

Culturally, however, the reasoning behind the ban was undeniably correct. The Solomon Islanders responded to the intrusion of technology during World War II with the Cargo Cult, invoice worshipers who prayed to the heavens for more parachutes filled with material wonders to descend. The effects of such visual phantasmagoria as "Miami Vice," Flight Simulator, and Lead Runner can only be devastating in a culture already confused, one whose roots are anchored in a highly localized clan loyalty.

Our culture is a long way from such primitive fetters. The world is our Club Med, and truly the personal computer will lead us to more pleasure. Where VCRs and personal computers — and the two will merge within the decade — differ from broadcast television is that while television is passive, computer and computer-controlled VCR/CD-ROM technology bespeaks control. This was the early promise of personal computing. The individual, one-on-one with the machine, would be able to command his or her own destiny.

But what is occurring instead is an escalating fragmentation of society. For all the homogeneity of culture that television has achieved and the personal computer has amplified, the individual is becoming more and more isolated in a private, mechanized world, retaining only tenuous links to history and mankind as a whole.

Erik Sandberg-Diment is a syndicated writer. The views expressed are his own.

My children know there was a World War II sometime in the past, a nebulous number of years ago. If they applied a bit of logic to its whereabouts in time, they could tell you it came after World War I. But they'd have to think about it. The artificial reality of their world — if it wasn't on TV, it didn't really happen — is being reinforced by the personal computing equivalent — those are the results the computer came up with, they have to be right.

The computer-enhanced Max Headroom character, Zork, and the golden spreadsheet are the new national myths of our country. Gone are the moral reflections on war, the choices between good and evil championed in history since that first public apple offering. Responsibility for one's actions is being reduced to the flick of a dial and the tapping of a few keys.

Yet in some ways the very technology that produces such social destruction should also be capable of enriching culture, utilizing the past as its building blocks in a way that more traditional studies of history never could. The integration of CD-ROMs with personal computers could lead to textbooks whereby the video-charmed could be visually absorbed into the past, to join Napoleon at Waterloo or Cree Indians making the cultural leap from shouldering canoes to shouldering refrigerators. The technology is here. The only stumbling block is the monetary wherewithal — and making sure that Max doesn't take over for Walter Cronkite.

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Buyers Guide

'When you consider the cost of getting information manually, expensive is a relative term.'

Madhu Kapadia, research specialist for AT&T Communications, discussing cost of on-line services.

ON-LINE SERVICES

BY MELISSA CALVO

With a modem and communications software, a user can gain access to hundreds of databases, on-line conferences, airline schedules, public domain programs, and electronic mail services. But despite this range of available services, few personal computer users have discovered the advantages of gaining access to information via telecommunications.

Only 37 percent of business PC users have modems, and even fewer have used their modems to reap the benefits of on-line services, according to Corey Bock, director of research for the electronic information program at Link Resources Inc. of New York.

Yet the companies that use on-line services have found that the systems can ease a variety of business problems. Such is the case with the Eiger Group, a Los Angeles real estate investment firm that holds regular meetings on the Participate conferencing system, an on-line service from The Source Telecomputing Corp. of McLean, Virginia.

The private electronic conferencing system enables more than 30 of Eiger's managers around the country to meet simultaneously on-line, according to Gordon T. Walker, executive vice president for the firm. "Information travels quickly, [which is] important when you look at the real estate marketplace," he said. "It used to take days to get the information and, in our business, every second counts."

About 80 topic-specific conferences are held to discuss various management issues, including acquisitions, lender negotiations, program development, and property, legal, and financial management, Walker said.

But one reason other users have not been quick to adopt these systems is because they find them difficult to use. One of the biggest barriers to overcome is users' technophobia, according to Bock. "Let's face it," he said. "Logging on to an information service can still be a frustrating experience."

Even for the experienced on-line user — such as Madhu Kapadia, research specialist at the information research center of AT&T Communications, in Morristown, New Jersey — learning to exploit every system is difficult. "It's hard to know the different procedures to each specific vendor and system," he said. "That takes time and effort."

Moreover, the learning process can be expensive; users can easily ring up a large bill if they spend too much time on-line. Kapadia, for example, gains access to a number of on-line services daily, including Dialog, Newsnet, Dow Jones News/Retrieval, and Nexis. The time he spends on-line can range from 15 minutes to two hours a day, he said.

Most vendors charge their customers for the amount of time they spend on-line, in addition to costs for downloading material. For example, Compuserve Information Services of Columbus, Ohio, charges its customers approximately $15 for each prime-time hour when transmitting data at 1,200 bits per second.

"Users' perception is that on-line services are very expensive," said Steve Glagow, manager of strategic business services for Walter Ulrich Consulting, in Houston. For on-line services to gain widespread acceptance, "prices will have to come down. We found that a majority of the [users] say they would require a monthly flat fee."

In the meantime, there is a move by vendors to make on-line service costs "estimatable," Bock said. For example, Telebase Systems Inc. of Narberth, Pennsylvania, now charges subscribers a fixed price per topic searched on its Easynet system.

Companies must decide who will be responsible for determining on-line use to better control costs, according to Bock. But, Bock says, "There is a big debate over whether the corporate MIS manager will control spending on commercial information services."

On-line vendors and some customers argue that these services are not as expensive as they seem. Because on-line services offer comprehensive information that can be accessed quickly, the services are cost-effective, according to Kapadia. "When you consider the cost of getting information manually, expensive is a relative term," he said. "You may spend $300 for an on-line search, but if you were trying to gather the same information manually it would

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cost a few thousand dollars."

The use of on-line services reduces the need for costlier resources, agreed Ike Carpenter, president of Micro EDS Inc., in Bala Cynwyd, Pennsylvania. On-line searching gives Carpenter access to market research information that aids clients of his business consulting firm. "It saves us a lot of money because it allows us to do the first level of research that we would otherwise have to pay market research firms to do," he said. In one case, Micro EDS was able to provide an auto industry manufacturer with information on the competition, related products on the market, potential market size, and the cost range of a product.

At The Coca Cola Co. of Atlanta, company executives use on-line financial information from Dow Jones to help them make business decisions. Every hour, updated stock quotes and currency exchange rates are automatically downloaded into Coca Cola's Novell LAN, according to John Lock, manager of technical support for corporate information services. "We have custom software for our local area network, [so that] it automatically goes into our databases."

Some 15 executives on the network use on-line information to design personal stock portfolios, graphs of the company's stock performance, or to keep track of the competition.

At Caterpillar Industrial Inc. of Mentor, Ohio, Compuserve functions as the communications system between Caterpillar, its marketing representatives, and 80 dealers, said Kenneth Lenardic, marketing systems engineer. "It's strictly for our own internal communications," he said. "We don't make use of other services." Most of the data passing throughout Caterpillar's communications system is not sensitive, but Lenardic said he tries to take necessary precautions to ensure that the information is not seen by anyone outside of the company.

One way that companies can safeguard sensitive information is by stressing the importance of confidential passwords. "The system is only as secure as you want it to be," claimed Lenardic. A secure communications system "depends on caution and how users approach it." In addition, Compuserve provides a "sufficient level" of security, he said.

No laws currently govern the privacy of electronic mail, but a bill that would create penalties for breaking into private on-line systems recently received congressional approval. The bill, The Electronic Communications Privacy Act of 1986, is expected to be signed into law by the end of the year.

Meanwhile, some on-line users are still concerned about the privacy of electronic mail. "Right now, since there is no legislation, it's like going to Las Vegas — you gamble with what you're willing to lose," Carpenter said. "For sensitive data, it's not secure enough yet."

As the number of services proliferate, more vendors will link their electronic mail systems together, providing an incentive for subscribers who want to be able to reach as many other users as possible, Bock said.

Such is the case of MCI Mail, which provides its subscribers with an electronic message service and a gateway to the Dow Jones News/Retrieval service. Recently, MCI began to offer an electronic mail link to the Compuserve system.

Other times, users turn to gateway services, which can provide access to hundreds of databases containing an array of subjects. Micro EDS, for example, uses the Infomaster service, from Western Union of Upper Saddle River, New Jersey. Infomaster is a gateway system that gives users access to 700 databases from 16 different vendors. The advantage to users of such a system is they do not have to learn the commands for each database they access, nor do they have to concern themselves with which database contains the information they seek. Users can search for information by subject, organization, and product, according to Western Union.

Gateway systems like Infomaster are increasing as on-line vendors continue to establish connections with each other, according to Bock. "Every vendor wants to keep as tight a hold on its customer base as it can, so they make sure that customers are never tempted to try another service." □

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The value of

FACT: CLOCK SPEED MATTERS LITTLE IN BUSINESS APPLICATIONS

Most business applications involve significant movement of data to and from hard disk drives. Therefore the faster the drive performs, the faster the application is completed.

Systemboard clock speed doesn't affect the speed of a drive. If you speed up your processor's clock speed, you only speed up internal calculations. You do not affect any form of input or output such as movement of data from a disk drive to a display.

A hard disk drive is a mechanical device with a minimal amount of electronics. It is significantly slower than the speed of the processor. While the solid state central processor's operation is measured in millions of cycles per second (megahertz), drive speed is measured in thousandths of seconds (milliseconds). Even the fastest disk drives can be well over 100,000 times slower than one processor cycle.

By lowering the average access time (speeding up the disk drive), you can make a performance improvement of much greater significance than any change in the processor's clock speed. To measure the speed of a hard drive, it is essential to determine its *average access time*. This is the time it takes to position the mechanical read/write heads to locate information.

The measurement of how long it takes the drive to get the information to the processor is called *data transfer rate*. This is measured in thousands of bytes per second (KB). The higher the data transfer rate the faster your computer can begin processing information.

A fast drive at a high transfer rate allows a system to operate much more efficiently than a fast clock waiting for a slow drive.

FACT: CORE'S 5.25 INCH DRIVES ARE THE BIGGEST, FASTEST, AND MOST RELIABLE DRIVES IN THE WORLD.

Unlike other manufacturers, CORE drives are what they say they are. Not two ST506 drives melded together for high capacity like one competitor. Or measured in unformatted capacities like some other competitors. Our capacities are always the useable, formatted capacity of a single 5.25 inch drive.

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And the fastest. CORE drives have the lowest average access times of any 5.25 inch drives available for IBM PC's, -XT's, -AT's or compatibles.

To insure performance and reliability, all CORE drives are built with advanced features: auto park and lock, dedicated servo surface, voice coil head positioner, full shock mounting, and super quiet operation. No other drive manufacturer offers all these features in a high performance drive that will support DOS, Xenix, and a full range of IBM compatibles..

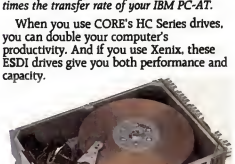
Standard CORE features just *aren't* offered by most drive manufacturers. For example, *auto park and lock* is a feature that uses an internal drive mechanism to automatically take the read/write heads to the dedicated landing zone and lock them in place when it senses a "power down." While some manufacturers say their drives have auto park and lock, they really just park and leave the read/write heads free floating. If the drive is moved or bumped, it can be damaged and valuable data can still be lost. All of this may go undetected for quite some time.

FACT: YOUR '286 CAN PERFORM LIKE A '386

By putting a High Capacity Series (HC Series) drive into your IBM PC-AT, you can increase the system's performance to match what you would expect from a '386. These 82, 115, 150 and 260 megabyte ESDI drives have average access times as low as 15 milliseconds. Almost twice as fast as any other drive, even drives slated for the '386 machines. Just check the speed of a Priam, Maxtor, or Tallgrass high capacity drive.

And, because of CORE's new, revolutionary High Capacity Controller, with its 1:1 interleave, your data transfer rate can be boosted to over 700KB/sec: *over four times the transfer rate of your IBM PC-AT.*

When you use CORE's HC Series drives, you can double your computer's productivity. And if you use Xenix, these ESDI drives give you both performance and capacity.



FACT: ATplus DRIVES GIVE PROVEN PERFORMANCE

In 1985, CORE set industry standards with the ATplus drives. Since that time, these drives have proven to be workhorses in any office environment, with average access times as low as 20 milliseconds.

For IBM PC-XT users, replacing the standard 85ms drive with a CORE ATplus drive will increase performance four to five times on applications that are disk intensive.

To get configuration flexibility without sacrificing performance, CORE's 26 and 43 megabyte half height drives offer the best performance: average access time as low as

New 3-year warranty
on HC Series and ATplus drives.

performance.

22ms. With these drives, you can increase the standard capacity of an IBM PC-XT and still leave room to grow. For systems such as AT&T, Compaq, or HP Vectra where internal space is limited, these drives offer performance unparalleled by any other half height drives in the industry.

And the High Capacity Controller also supports ST506 and all ATplus drives with the same 1:1 interleave resulting in a transfer rate of close to 500KB/sec. This is nearly 3 times the transfer rate of a standard IBM controller.

FACT: YOUR PC CAN PERFORM LIKE AN IBM-XT

The IBM-PC's standard power supply doesn't allow use of a hard drive, but with CORE's Peripheral Storage System 217, you can add from 20 to 144 megabytes of storage. Or up to 72 megabytes of storage PLUS a COREtape backup system! And you can use these drives and expansion unit if you upgrade to an IBM PC-AT at a later date.

Don't get fooled into thinking you can get performance by putting a hard card into your PC. Hard cards can be slow, with typical access times of 65 to 110 milliseconds, and could overload the power supply causing random equipment failure.

With its own 130-watt power supply and two full height slots, the CORE Peripheral Storage System 217 is designed to support all of CORE's products. Use it as an expansion module with any IBM personal computer. With CORE's HC Series, you can add up to 520 megabytes of storage. It can easily be plugged into any system, or moved from one system to another, to provide a cost effective mass storage solution.

FACT: BACKUP IS ESSENTIAL

How much can you *really* afford to lose? Since there is no way to tell when an important file might accidentally be deleted, lost, or destroyed, COREtape's speed and ease let you make backups regularly. With COREtape, CORE's streaming tape backup system, you can save 20 megabytes in as little as four minutes or 60 megabytes in 12 minutes.

Complete with drive, controller, cable, and software, COREtape is ready to plug into any IBM PC-XT, IBM PC-AT or compatible.

COREtape is flexible. Backup and restore in image or file-by-file modes using the menu or command line operations. Restore one or more files *from an image backup.*

COREtape works with CORE, IBM, and the other drive manufacturers as well as Novell and all major Local Area Networks. Backup on one drive and restore to another, in both image and file-by-file modes.

One of the advanced error checking features of COREtape is automatic read-after-write. If data isn't written correctly, COREtape writes again to ensure the integrity of the backup.

And for those users who want the speed, reliability, and features of a tape backup system on diskette, CORE has a new software product, CORE*fast*. This high speed backup software is perfect for small or large backup volumes. With the advanced features of COREtape, CORE*fast* is over four times faster than using DOS BACKUP to diskettes.

Though developed for backup from hard drive to diskette, CORE*fast* is flexible enough to backup from a hard disk to *any DOS device* such as another hard disk or removable cartridge.

In addition, unlike other software utilities, CORE*fast* is the only diskette backup program that can backup and restore in image mode. Its unique catalog feature gives you the ability to select one or many files from multiple directories *right off your screen.* As fast, flexible, and reliable as all CORE products, CORE*fast* makes it easy to backup often.

FACT: WHEN YOU COMBINE CORE DRIVES WITH CORE BACKUP, YOU HAVE THE MOST ADVANCED AND RELIABLE TECHNOLOGY AVAILABLE

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First Look

By Michael J. Miller

1-2-3 Clone, Powerful Windowing Environment Deserve Extra Attention

A couple of short takes this week:

Words & Figures:

1-2-3 clones aren't quite a dime a dozen yet, but they are getting close. Mosaic Software's Twin, Interface Technologies' Farsight, and Paperback Software's VP-Planner offer nearly all of the capabilities — if not the speed — of Lotus 1-2-3, Version 1A. These clones usually offer a few extras such as Farsight's window environment and word processor and VP-Planner's multi-dimensional database.

The latest entry in the 1-2-3 clone sweepstakes is Lifetree Software, best known for its Volkswriter series of word processors. Its Words & Figures is a Version 1A clone coupled with a simple but quite functional word processor.

When you start Words & Figures, you can choose from a 1-2-3-like menu whether you wish to enter the Text or Spreadsheet modules of the program.

If you choose the spreadsheet option, it displays a worksheet that looks as much like 1-2-3 as any product I've seen. The only major difference is that the worksheet itself is surrounded by a little box. You enter commands by typing the slash key followed by the first letter of the command, just as you would with 1-2-3, and all of the Version 1A commands are present. The program also adds a few new commands for such things as moving data to the word processor.

The word processor is not (perhaps surprisingly) a variation on Volkswriter. Instead, it's a basic word processor that follows the 1-2-3 interface. It contains all the basic functions, such as Cut and Paste and Search and Replace, and even allows you to embed an active spreadsheet within a document.

I tried Words & Figures with a variety of 1-2-3 spreadsheets, and all seemed to work fine except those that relied on the new macro functions in 1-2-3, Release 2. Words & Figures seems slightly slower than the original 1-2-3, but slightly faster than Release 2.

Words & Figures adds several features that are in 1-2-3, Release 2, but not Version 1A, including support for the Lotus/Intel/Microsoft EMS, sparse memory management, and support for math coprocessors. But it does not have Release 2's new commands and, like Version 1A, cannot read Release 2 worksheets. On the other hand, Words & Figures costs $195, compared to $495 for the Lotus product, and Lifetree's entry is not copy-protected.

Words & Figures is expected to be shipped on November 3 from Lifetree Software (411 Pacific St., Monterey, CA 93940; [408] 373-4718).

Desqview 1.3

I've talked about Desqview several times lately, but though it is finally getting some attention, it deserves even more.

I know several "power users" and microcomputer managers who believe that Microsoft Windows will eventually win the environment competition, but right now they use Desqview. I fit into that camp too. Windows is a powerful environment, but unless or until I get Windows-specific applications, Desqview is simply a faster, easier way to run multiple programs simultaneously and switch among them.

The latest version of Desqview (1.3) adds support for the Compaq Deskpro 386 using the "virtual mode" of the Intel 80386 central processor.

That sounds real techie. What it means is that you can load as many MS-DOS programs as will fit into the memory you have in your machine, and switch between them instantaneously. And you don't have to worry about memory limits. I added a Cheetah memory card with 1.5 megabytes of fast 16-bit extended memory to the 1 megabyte of superfast 32-bit memory that comes standard with the Compaq 386. Because of the Compaq Expanded Memory Manager and the 386's virtual mode, Desqview can address all this memory as EMS. I can then load Ready, 1-2-3, Paradox, Microsoft Word, and Supercalc 4 and switch between them at the touch of a button. It's a software junkie's dream.

Desqview also allows you to swap between programs on other machines, working best if you have EEMS memory. But on a Deskpro 386, the swapping is amazingly fast. You literally don't notice a time delay.

Desqview costs $99.95 and is available from Quarterdeck Office Systems (150 Pico Blvd., Santa Monica, CA 90405; [213] 392-9851). It's not copy-protected, and I recommend it highly.

First Look examines new personal computer products before they have been through a formal review.

There's a little Andy Kay in every Kaypro.

Okay, so the KAYPRO PC looks a lot like all the other desktop PCs on the market. But underneath that rather basic beige exterior beats the heart of a rebel — a rebel *with* a cause. No, not James Dean. But certainly someone with a unique vision. Someone who in 1952 took that vision, a degree from MIT, and a few thousand dollars borrowed from his father and built the Kaypro Corporation, one of the biggest little companies made in America. For more than 34 years, Andy Kay has been an electronics innovator. Proof positive? The KAYPRO PC.

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9
8 — **Very Good 7 - 8.9** Offers special benefits
7
6 — **Satisfactory 5 - 6.9** Meets essential criteria
5
4 — **Poor 3 - 4.9** Falls short in essential areas
3
2 — **Unacceptable 1 - 2.9** Fails to meet minimum standards
1

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Mac Calc

Spreadsheet Program Amazingly Speedy

Though Simple and Inexpensive, It Is Fairly High Powered

By Doug and Denise Green ReviewBoard

Mac Calc from Bravo Technologies is a Macintosh spreadsheet program with all of the usual spreadsheet features plus a few pleasant surprises. Although priced low at $99.95, it is fairly high powered. It's not quite as high powered as Excel, perhaps, but it actually runs faster than Excel; and it clearly surpasses Multiplan in both speed and features.

Mac Calc also offers variable row heights and varying fonts and styles; these features make it attractive to desktop publishers.

FEATURES:

Compared to Excel, Mac Calc has no macros, does not do graphs, and lacks database functions. But Mac Calc does have a few unique features, including cell annotation and variable row height.

Mac Calc operates from a desktop that contains the worksheet window, entry bar, and menu bar. This will be familiar to spreadsheet users. Standard Macintosh features, such as the clipboard that holds information for cutting, copying, and pasting and cell selection via the mouse, are also employed.

Since the entire model resides in memory, the actual amount of information that a single file can hold depends on the amount of memory your computer has. The About Mac Calc option on the Apple menu can be used to determine how much memory is left.

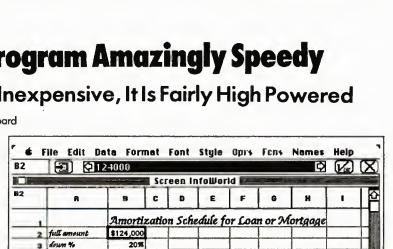
Mac Calc has the basic spreadsheet features and some special ones. Each sheet can have up to 999 rows and 125 columns. The sizes of columns can be adjusted by using the format menu or by dragging to the desired width. But Mac Calc also offers a unique variant: You can adjust the size of the rows by dragging to the desired height.

Any system font can be used in any style, with sizes that vary from 9 points to 48 points. The font, size, and style can vary cell by cell, and your finished worksheets can be enhanced to publication quality.

A unique feature allows you to make notes for each cell. The notes can be up to 256 characters and are displayed when you ask for them by double-clicking on a cell. This permits documentation of your spreadsheet, a valuable bonus.

A wide range of formatting options allow text and numbers to be aligned or rounded as desired. Cells or ranges can be named, and names can be used in formulas.

Moving around your worksheet is made easy with Mac Calc. When you grab the elevators while moving to a row or column, the row or column that the cursor lands on is prominently displayed. You can also type the row or column you wish to go to and move there directly by pressing the go icon on the entry bar. The scroll bars can be hidden in order to see more of your worksheet. You can limit the range of rows or columns that the scroll bars access so they only move you around the area of the worksheet you're actually using. With programs like Excel and Jazz, a tiny movement of the scroll bar jumps you 100 rows at a time, making the scroll bars of limited value. With Mac Calc, you can fine-tune the scroll bars, making them far more useful.



Mac Calc can vary the height of rows (as here with row 11) as well as the width of columns, and it can change fonts in individual cells.

Mac Calc has 49 math functions, including a variety of trigonometric, logarithmic, polynomial, and statistical functions. Business functions include net present value, future value, and an interest function. The 17 operators include date, logical, comparative, and lookups. Both functions and operators can be selected from menus as well as typed directly from the keyboard.

The Fill command lets you automatically generate a table of values that vary by a selected increment. A Paste Multiple command can fill a range with as many copies of the clipboard contents as are necessary, if the size of the clipboard is smaller than the selected range. A Move command allows for movement of selected ranges. This feature correctly changes cell references in formulas that are moved, which is better than the cut-and-paste approach used by other spreadsheets.

Mac Calc has a few extra features that help in finding data and preventing accidental modification of worksheets. You can protect a worksheet with a password, and you can lock individual cells or ranges. You can search for numbers or strings of text, and sort selected sections on up to three column keys.

Worksheets can be imported from or exported to other applications such as Macwrite, Microsoft Excel, and Lotus 1-2-3. Formulas may be moved intact using the WKS format, or you can move only data using the Sylk format.

Mac Calc supports all standard Apple printers including the Imagewriter and Laserwriter. A variety of printing features are available, including headers, footers, date and time, page numbering, 50 percent reduction, and even sideways printing for larger worksheets. Grid lines, a page frame, and row and column borders can be selected or omitted.

PERFORMANCE:

The most important performance consideration for a spreadsheet program is the speed at which it recalculates formulas when values are modified. To test this important feature we filled a 7-by-100 grid with formulas that were all based on a single value in the upper left corner. Successive rows required calculations involving addition, multiplication, division, squaring, and square roots. Mac Calc took 3.15 seconds to recalculate this model, Excel took 3.70 seconds, and Multiplan required a leisurely 20.7 seconds.

As a further test, we filled a 5-by-500 grid using Mac Calc's random number function. Mac Calc sorted this file in eight seconds; Excel required about 12 seconds; and Multiplan could only hold 255 rows, yet still took 13 seconds to sort this smaller worksheet.

Moving worksheets among these three products using the WKS format works well. The only changes required for worksheets loaded into Mac Calc involved entries that were wider than the cells in which they resided. To adjust these cells we had to select them and choose Overlap from the style menu, since the default setting in Mac Calc prevents entries from overlapping.

Bravo may have gotten carried away with speed, however, during implementation of its scrollable menus. These are menus that contain more choices than the screen can hold. When you drag past the bottom of these menus, more choices scroll up. In our opinion they scroll so fast that you can easily lose your place.

We were impressed with the appearance of the worksheets we were able to print on our Laserwriter Plus using Mac Calc. This product functioned flawlessly when asked to display or print any combinations of the fonts or styles available. As a result, our spreadsheet output could be used directly in reports rather than having them enhanced using another product.

The only minor flaw we could find in Mac Calc's performance relates to the speed at which menus drop down after large portions of a worksheet have been selected. Instead of dropping down immediately, the menus take almost a second to fully appear. According to Bravo, this time is required to check the formatting in the area selected. This allows the check marks on the menus to appear in the proper locations. This can be confusing when you click on a menu and it seems like nothing is happening because it fails to drop down immediately.

This aside, the speed of Mac Calc is impressive. While it doesn't have Excel's macros, graphs, or database functions, it adds variable row height, the capability to annotate cells, and some valuable printing features. The result is clearly a superior performer. We rate Mac Calc a solid very good in performance.

INFO WORLD THE NEWS WEEKLY

REPORT CARD

SOFTWARE
MAC CALC

7.3

	Unacceptable	Poor	Satisfactory	Very Good	Excellent
Performance	☐	☐	☐	☒	☐
Documentation	☐	☒	☐	☐	☐
Ease of Learning	☐	☐	☒	☐	☐
Ease of Use	☐	☐	☐	☒	☐
Error Handling	☐	☐	☒	☐	☐
Support	☐	☐	☐	☒	☐
Value	☐	☐	☐	☐	☒

SUMMARY

Mac Calc is a mustang of a Macintosh spreadsheet. It has all the basic spreadsheet features, along with some innovations like variable row height and annotation of cells. Despite some shortcomings in documentation, its speed (faster even than Excel in some areas), price, and publication-quality output make it an attractive program. Not copy-protected.

PRODUCT DETAILS

List price, $99.95. Version tested (1.0) available for the Macintosh. Bravo Technologies Inc., C/O DPAS, P.O. Box T, Gilroy, CA 95021; (415) 841-8552, (800) 345-2888 for orders.

DOCUMENTATION: The Mac Calc manual is a 149-page, 6-by-9-inch spiral-bound notebook. It includes sections on learning and using the product, a reference section, and a technical section explaining error messages. A help menu provides on-line help and contains a few sentences about most of Mac Calc's features.

The documentation is the weakest part of the product. It is mostly a reference section with just 20 pages devoted to tutorials. In fact, the learning portion contains only one spreadsheet example. Extra pictures displaying the features would be helpful as would a more complete index. The manual does not fully explain such details as installing the program on a hard disk drive or installing printer drivers; it merely mentions that these are possible.

As a reference, the documentation is hit or miss. We had problems getting commas to appear in some of our values; an explanation of this feature had to be obtained from the support line rather than from the manual. We also could not find any reference to the Scan and Calc items that appear on the screen during recalculation. They seem to give some indication of how much of the recalculation process is completed, but we would like to know the details.

Because of the sketchy learning section, some weak explanations about how to use the product, and the missing information, we must rate the documentation as poor.

EASE OF LEARNING: Despite the missing information in the manual, you can learn Mac Calc with little difficulty if you have used other spreadsheets. We were able to use most of Mac Calc's features without any reference to the

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manual. If you are new to spreadsheets, however, the documentation may not provide all the help you need to master this otherwise fine product. Although there is a brief learning section and two sample files on the disk, it is the Macintosh environment that may make the task of learning Mac Calc acceptable for spreadsheet novices.

Experienced spreadsheet users will be able to learn the product easily while novice users may struggle a bit. On the balance, we rate ease of learning as satisfactory.

EASE OF USE:

Mac Calc enjoys the basic ease of use of all Macintosh products, with its ability to click on cells rather than type references. This is true for selecting ranges of cells for movement or for copying formulas. You can even select operators and functions from a menu bar, which saves you the trouble of looking up the exact syntax for rarely used functions.

The row and column designations that show up when you grab the elevator bars allow for rapid movement around your model. Many keyboard shortcuts are also available. A cancel icon for erasing an entry before it is entered and an OK icon that functions like the enter key save time.

The ease of use associated with the Macintosh has been supplemented by the general design of this program. For these reasons we rate ease of use as very good.

ERROR HANDLING:

Mac Calc is great at letting you undo operations. Unlike other products, Mac Calc even lets you undo a sort and redo the last sort, without going to a screen where specifications have to be entered. The Move option also helps in avoiding errors since it does a better job of managing cell reference changes than the usual cut-and-paste approach.

We found two problems in Version 1.0 that detracted from otherwise superior error handling. When we tried to print a worksheet on our Laserwriter by selecting it and choosing Print from the finder's File menu (rather than from within the program), we were greeted with the bomb icon. A second bomb was found when we tried to sort a worksheet that had all 999 rows full of data.

Neither bomb prevented us from making good use of the product. Bravo told us that these bugs, as well as others we had not discovered, had been fixed and would be sent to all registered users as Version 1A in early November.

Until then, the fine Undo and Move features are offset by a few remaining bugs. We can therefore rate error handling in this version no higher than satisfactory.

SUPPORT:

Mac Calc is not copy-protected and comes with a 60-day media-only warranty. In addition, registered owners get free bug fixes and information about new products. Technical support (not toll free) is available from 10 a.m. to 5 p.m. Pacific time.

When we called for support, we were greeted with a recorded message. About three hours later, we got a callback from the programmer (and company president), Richard Ross, who, it turns out, worked on both Lotus 1-2-3 and Borland's Reflex database. His explanations were clear and his attitude enthusiastic. He even called back later with more information.

The support we received from Bravo was helpful and accurate, but you may have to wait for your call to be returned. We also wonder how long the programmer can keep on providing support as Bravo sells more products. Nevertheless, we rate support as very good because of the free updates and the quality of the technical support we received.

VALUE:

Mac Calc is the clear value leader in the Macintosh spreadsheet market at this time. It has more features and power than Multiplan ($195) at a much lower price. While it can't compare to an integrated package like Excel ($395) in sheer features, as a pure spreadsheet, it is faster and far cheaper. Dollar for dollar, this little mustang of a program is a bargain. At $99.95, it is difficult to rate it anything but excellent.

Doug Green is director of computer services for a New York State school district and has also taught computer programming. Denise Green is an educational computer consultant and teaches computer use to adults.

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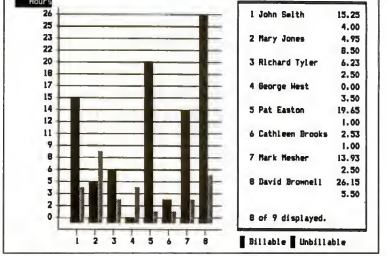
Timeslips

Jewel of a Billing Program Tracks Time, Makes Invoices

By Nicholas Petreley Review Boord

People who bill clients for their time know what it is to deal with the tedious record keeping involved. Logs become a mess, figures are arbitrarily rounded up or down, and minutes disappear in the confusion of sorting the time spent on different jobs.

We frankly didn't expect Timeslips, a time and billing software package from North Edge Software, to be much help in straightening out this mess. But it turned out that our record keeping and reporting became much easier, we regained lost minutes (and lost charges), and we quickly became addicted to this effective, amazingly powerful little package.



North Edge Software's Timeslips, a time and billing package, helps users keep track of records by showing the number of billable vs. unbillable hours worked on a project.

FEATURES:

Timeslips is built around two programs: TS-Timer, which can be memory resident and keeps track of your time use, and TS-Report, which generates reports and invoices.

You create time slips with TS-Timer. You have your choice of manually entering the amount of time spent on a project or having the timer clock the time spent as you work. The hourly charges for that time can be based on one of three categories: the user's hourly fee (where more than one user will be logging times at different wages), the account to which you are charging the work, or the rate for the type of work being done.

The program allows up to 240 definitions per Timeslips file, distributed among these three charge categories, which would give one user room for 200 clients and 40 non-client accounts, or allow four people to handle 50 clients. While for some this could be a limitation (you couldn't run a 10-person legal department with one package, for example), it should be more than sufficient for most small time-billing practices, such as programming, consulting, and legal offices or departments.

Each time slip can be marked as work in progress, billable, non-billable, or no charge. One-time charges, such as for supplies or travel expenses, can be added to the slips and included in the bill. The projected time for a job and the accumulated time spent are also displayed. You can search for particular slips by a variety of references.

The report program, TS-Report, is a powerful report generator with enough features and flexibility to satisfy the time and billing needs of most users. In addition to bills and invoices, TS-Report generates transaction, tax, and aging reports, as well as customer lists and mailing labels. It also provides graphs and reports for managing your time by examining and analyzing how you use it, so you can compare such things as billable and non-billable projects, fixed-fee and hourly projects, time spent vs. time projected, and more.

If a full-feature accounting system is required, Timeslips can be supplemented with a $49.95 add-on product called Time-Link Plus, which integrates Timeslips with the $295 One-Write Plus general ledger/accounting program from Great American Software. You can also export Timeslips data to an ASCII file for use with other programs.

PERFORMANCE:

The program TS-Timer occupies about 49K of memory when used as a memory-resident utility. Fortunately for those suffering from memory cram, TS-Timer can also run non-resident from the DOS prompt. Using the program in memory-resident mode makes the system particularly responsive, letting you bill those phone calls that turn into unexpectedly long and expensive sessions. Running the program separately from DOS can still be convenient if your major application allows you access to DOS from within the application, as do current versions of Word Perfect, Lotus 1-2-3, Symphony, Rbase System V, and Dbase III Plus.

You can manually enter the time you've spent on a job or have the timer measure it for you as you work (when memory-resident). When you activate a time slip, the time is recorded. The biggest problem is remembering to deactivate the time slip when you have done a particular job. If you forget and leave the slip on overnight, the timer can get confused. We can think of no obvious software solution. Like its paper-based equivalent, Timeslips is the kind of product you've got to get in the habit of using.

North Edge has packed a lot of flexibility into how you can look at your data, providing a lengthy list of analysis reports, graphs, and bill formats. There is a facility to customize your own report, which is useful for exporting data to other programs. The format for printing bills has limited flexibility, however, and although we were able to make the bill fit our standard invoice form, you may have a little trouble if your form places items in unusual locations on the page.

This is a quibble, however; Timeslips handles the task of time billing very well, and for a program optimized for the small department it does more than we ever expected. We have seen less effective time and billing packages that cost 10 times more. Timeslips is a real charmer. We rate performance as excellent.

DOCUMENTATION:

The documentation is the weakest link in this otherwise marvelous product. The manual is of the no-frills variety, printed with a reduced Courier 10-pitch typeface and using legal-style outline numbering (such as paragraphs numbered 5.4.3a). The manual is reminiscent of early CP/M software manuals.

Despite this lapse in production values, there is much to praise. First, both beginners and advanced users are addressed in the manual; advanced users are given separate, more terse instructions. Second, the tutorial functions as a useful way to get productive in a minimum amount of time.

Some features that we had remembered reading about and wanted to find again weren't listed in the index, necessitating time-consuming skimming of the manual to find the items. The documentation could also benefit from a few more examples of different printed reports, saving the user from having to experiment until arriving at the desired result.

Overall, the documentation serves its purpose and does particularly well at introducing Timeslips. Despite its flaws, we rate the documentation as satisfactory.

EASE OF LEARNING:

The designers of Timeslips demonstrate

INFO WORLD THE NEWS WEEKLY

REPORT CARD

SOFTWARE
TIMESLIPS

9.3

	Unacceptable	Poor	Satisfactory	Very Good	Excellent
Performance	☐	☐	☐	☐	☒
Documentation	☐	☐	☒	☐	☐
Ease of Learning	☐	☐	☐	☒	☐
Ease of Use	☐	☐	☐	☒	☐
Error Handling	☐	☐	☐	☐	☒
Support	☐	☐	☐	☒	☐
Value	☐	☐	☐	☐	☒

SUMMARY

Timeslips is an elegant time and billing package that rivals the functionality of far more expensive programs. It is an ideal choice for small programming, consulting, or law firms, or any other business that involves hourly fees. This little gem is a pleasure to use.

PRODUCT DETAILS

List price, $99.95. Version tested (2.26a) available for the IBM PC, PC XT, PC AT, and compatibles running PC- or MS-DOS 2.0 or later. Requires at least 256K, two floppy drives. North Edge Software Corp., P.O. Box 286, Hamilton, MA 01936; (617) 468-7358.

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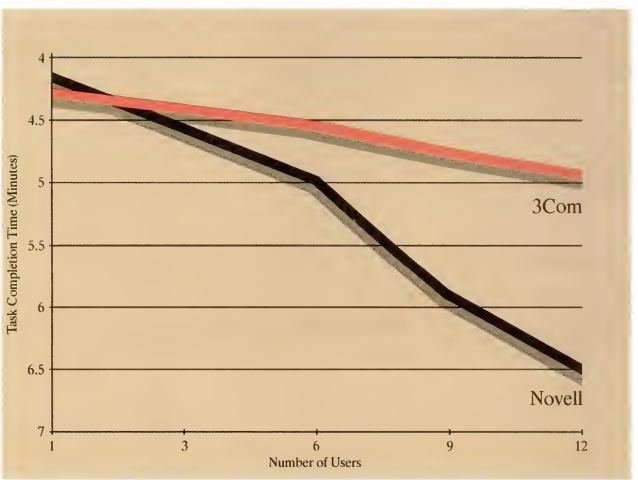

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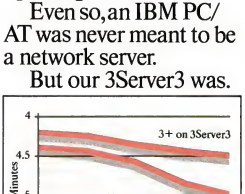

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with this program a keen understanding of the needs of time-billing professionals, and a knowledge of how they work in real life. Learning to use Timeslips is intuitive because it directly addresses the issues in time billing: who you're working for, what account you're working on, what kind of job you're doing, how much you charge per hour, and what determines the rate you're charging. Having defined that, you are ready to use Timeslips.

There is no on-line tutorial. Instead, the written tutorial guides you through the creation of your first simple time slips, and then shows you how to print your first bill. This provides instant gratification, as you are immediately productive. You are not bogged down with learning countless features and variations in producing your first report. Instead, you are told which keys to press to print a bill, and the subtle complexities are left for later when you feel more comfortable with the system. Busy professionals will appreciate this written approach.

After being coddled by the program through the creation of a few time slips, it is easy to mistake the multistep process for creating a report as a break in the program's easy-to-use approach. You must make a series of menu selections in the correct order, but this turned out to be easy to do.

Context-sensitive help is available for every operation while within the program, and function key actions are clearly described at all times in the lower half of the Timeslips window.

Although reporting can be complex and there is no on-line tutorial, the coherent design of Timeslips and the quick-start written tutorial earn Timeslips a very good rating in case of learning.

With North Edge Software Corp.'s Timeslips, entering information on a time slip is as easy as filling out a pop-up form. The function keys are shown on-screen.

EASE OF USE:

The Timeslips installation program can be used to route the display through the BIOS, which increases the likelihood that Timeslips will work with semicompatibles. You can use the setup program to eliminate the timer and rates display, in case you use the program in a sensitive environment where onlookers should not have access to your rates. Timeslips can be password protected through the setup program.

Timeslips is an exceptionally well-organized system. Much thought was given to operator convenience. There are so many ways to access a particular time slip while in the timer program, for example, that you won't be fumbling for the right slip at a moment's notice.

Even the careless user will find Timeslips a model of convenience, as the program is (except in reporting) very forgiving if you don't perform every operation in the correct order. For example, new users, accounts, and activities can be added on the fly, as you create new time slips.

Timeslips is most useful on a hard disk-based system with a full 640K of memory. The option to use the program as memory-resident or from DOS came in handy on several occasions. You could conceivably use Timeslips on a two-floppy system, but we don't recommend it because you need to have the Timeslips data file handy at all times.

Timeslips is, of course, infinitely easier to use than a paper-based system. It is hard to imagine any additional features that would make the program even easier. We therefore rate ease of use as excellent.

ERROR HANDLING:

If there is any talent for which we could be acclaimed it is our ability to make programs fail, falter, grow confused, garble data, crash, hang, and generally fall through holes never foreseen by the programmers. Timeslips, though, could easily drain our confidence.

Removing the Timeslips file elicits a simple error message that it cannot be found. Despite the warnings in the manual to the contrary, we loaded Timeslips among our memory-resident utilities in the wrong order, without evident consequence. This is an improvement over an earlier version that had some difficulty behaving with other memory-resident utilities.

Timeslips responded to our attempts at confusing the report program through selecting menu options out of order with accurate instructions about what steps were erroneously left undone. Most user errors are anticipated and trapped before harm can be done. For example, operating the report program without first correctly setting the date would have to be an act of deliberate sabotage: TS-Report is very insistent on seeing the correct date.

Because Timeslips is such a rock solid performer, undaunted by our attempts at making it misbehave, and offers such clear error messages and help, it earns an excellent rating in error handling.

SUPPORT:

Timeslips is not copy-protected. There is a 30-day warranty on defective disks. Additionally, there is a 30-day conditional money-back guarantee. The product comes with one functional program disk with limited capacity and one full-feature version in a sealed pouch. You can try out the limited-capacity disk, and if it doesn't meet your needs, send back the sealed disk for a refund.

Technical support is provided; there is no toll-free line. The vendor is planning some kind of paid support program. We happened to call at a time when no technical support personnel were available, yet the person we reached knew Timeslips as though he had programmed it. Our questions about data conversion and compatibility with other memory-resident utilities were answered with accuracy and confidence.

The competent advice, the lack of copy protection, and the limited but still useful money-back guarantee combine to earn Timeslips a very good in support.

VALUE:

We have seen customized time-billing programs, successful ones, that have fewer features and less flexibility than Timeslips. Timeslips has some limitations in the number of users, accounts, and activities that can be assigned, and to get a complete accounting system you must send the data to another program, but Timeslips alone will still be more than adequate for the billing demands of many consulting, programming, or legal firms. At $99.95, we find Timeslips to be an excellent value, and a little gem.

Nicholas Petreley is president of a microcomputer consulting, programming, and training firm in New Jersey.

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dBase III									
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Cygnet Technologies' Get

Pop-Up Package Checks E-Mail For You — Behind the Scenes

By Lamont Wood Review Board

If you've noticed that you're burning up a lot of your day just checking your electronic mailboxes, then Get from Cygnet Technologies may be worth a look. Running on an IBM PC with a Hayes modem (or compatibles of either), this $89.95 program will check your mailboxes in background mode, leaving you and your PC free to pursue more meaningful tasks in the foreground.

Notice, though, that Get only checks your mailboxes; it doesn't retrieve the mail it finds on its own. To get your mail, you use Get as an ordinary communications program, in foreground mode, and retrieve it yourself.

FEATURES:

What you get are two programs — the background communication software with the file name of Get! (and don't forget the exclamation mark) and a setup utility called (of course) Getset.

Get functions as a pop-up utility in the tradition of Sidekick; you can call it to the screen at any time with an Alt-G hot key (or you can define your own hot key).

The software can be told to check your mailboxes whenever you start your computer, or at specific times or specified intervals. It will proceed in background mode, dialing a number and flashing the message "checking mail" in the top right corner of the screen while it does so. If it finds anything, the message changes to "mail waiting." Meanwhile, your other software can run in foreground mode.

If Get cannot get through to the mailbox on a service, it will retry up to 10 times, once every five minutes.

When you press the hot key, you get a screen with a list of your electronic mail services and a listing of the results so far for each service — whether it was found to have mail, the time of the next scheduled check, the time of the last check, and how many retries were involved.

Get comes preset for 11 electronic mail services: AT&T Mail, Compuserve, Dialcom, Easylink, Genie, International Record Carrier (a Telex firm), MCI Mail, Ontyme, The Source, Quickcom, and GTE Telemail.

You use the setup program to pick out the mail services to which you have subscriptions, and to enter the access method you're using (Telenet, Tymnet, or directly), the phone number, and your ID and/or password. You also mention the number of your machine's serial port and baud rate of the modem or service.

You let Get take it from there — in fact, you have to since there is no way of changing the "log-on script" it uses to search for mail once it enters the services; if any service changes its mailbox commands, you have to get an update from Cygnet.

Get issues commands to reach the mailbox area of the service and watches for a specific word or phrase that indicates that you have mail. To retrieve the mail that Get has found, you call up the Get menu and press F9 for automatic log on. Get will then dial the appropriate number to get you into the service's mail facility. You have to handle things yourself from there to review the mail and download it.

From the Get main menu you can also log on manually to any service you desire (typing all the necessary information as you go), or toggle into a text editor. The editor can save and retrieve files, and print the buffer. If you are on-line, the buffer contents can be transmitted directly, with one keystroke. Get can use any of three protocols: line by line, Xon-Xoff, or Xmodem.

Of course, not everybody will be using the 11 mail services that come with Get, so Get also has a "script file language," so you can create your own log-on procedures. Such scripts are written from within the Getset utility, and once written, a script shows up on the list of mail services that appears when you next call up the Get menu.

PERFORMANCE:

We used Get to check mail with MCI Mail, BIX, Easylink, and The Source. With all but The Source, Get performed as advertised, checking for mail periodically and announcing it when found, and permitting us to retrieve the mail.

With The Source, Get never found any mail and kept retrying. Watching what happened after using the automatic log-on command, we saw it would get into The Source all right, but then it just sat there; it never invoked the mail facility. After listening to my complaint and trying The Source from his own terminal, the Cygnet technical support person said he would send a bug fix. Unfortunately, the fix he sent did not work.

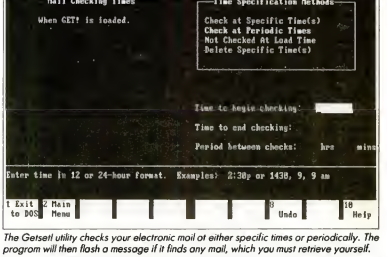
The text editor offered some unhappy surprises — word wrap worked in overtype mode, but not in insert mode, and as the line lengthened past the margin, the excess verbiage went straight to limbo. While the cursor control and editing keys worked mostly as labeled, Ctrl-End blanks the line you're on. The editor seemed best suited for snappy rejoinders — not massive missives.

The script language is limited and lacks an if-then-else procedure. It can dial numbers, wait for specific text from the host, and then respond in several ways: It can reply with text, save input to memory, set and increment flags, and jump to labels inside the script.

And that's about it — Get has just enough functionality to log on and check one item (your mailbox status, or perhaps the price of one stock). To actually retrieve the mail would require the capability to look for and respond to more than one condition — such as multiple messages and More prompts. We were able to get it to check mail on BIX, Byte's on-line conferencing system, but had trouble getting it to check conference activity as well, since it would not watch for the More prompt and the command prompt at the same time.

Cygnet's technical support person told me the firm is working on a fancier version that will be able to retrieve mail. Meanwhile, Get strikes us as an infant produced by a cross between Microsoft's Access and Microstuff's Crosstalk. It has the menu-to-lower-menu command structure of Access, only with vastly fewer menus and a script language reminiscent of a limited Crosstalk.

We tested Get to see how it reacted with other programs running in foreground. We had no problems running it with standard programs like GW Basic or Dbase III. With programs that intercept keyboard signals, like the Leading Edge Word Processor, however, Get does not



The Getsetl utility checks your electronic mail at either specific times or periodically. The program will then flash a message if it finds any mail, which you must retrieve yourself.

INFO WORLD THE PC NEWS WEEKLY

REPORT CARD

SOFTWARE

GET

5.4

	Unacceptable	Poor	Satisfactory	Very Good	Excellent
Performance	☐	☐	☒	☐	☐
Documentation	☐	☐	☒	☐	☐
Ease of Learning	☐	☐	☐	☒	☐
Ease of Use	☐	☐	☐	☒	☐
Error Handling	☐	☐	☒	☐	☐
Support	☐	☐	☒	☐	☐
Value	☐	☐	☒	☐	☐

SUMMARY

Get is a simple memory-resident communications program that repeatedly checks your electronic mail services in background while you do other work in the foreground. Get is a reasonably priced solution if your job demands that you always know immediately when you've got electronic mail. Not copy-protected. For the IBM PC.

PRODUCT DETAILS

List price, $89.95. Version tested (1.02) available for the IBM PC, PC XT, PC AT, or compatibles running PC- or MS-DOS 2.0 or later. Requires 128K of RAM, one disk drive, Hayes-compatible modem. Cygnet Technologies Inc., 1296 Lawrence Station Road, Sunnyvale, CA 94089; (408) 734-9946, (800) 621-4292, or (800) 331-9113 in California.

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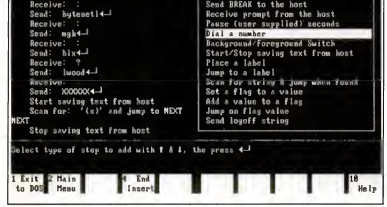


Get has a simple script language that you can use to add to the 11 preset on-line electronic mail services that come with the package.

respond to the hot key command. Get ran fine with Sidekick, another memory-resident utility.

Get does what it claims to do (aside from the bug with The Source) in a plain but straightforward way — it checks your mail and helps you get it. We rate performance as satisfactory.

DOCUMENTATION:

There's an 84-page user manual and a four-page *Five-Minute Manual* that's a quick-reference card for getting the software installed. There is nothing resembling a tutorial, and the manual is innocent of screen shots. The index was just an expansion of the table of contents — finding the hot key combination required finding the "key selection to invoke Get" subhead under the "Getset System Configuration" heading.

The manual is arranged in logical order — Getset commands, since you need to set them first, and then a description of Get commands.

While the Getset configuration utility had context-sensitive help screens, Get had no help screens. Admittedly, Getset is where you would need the most help.

On the other hand, Get is really not that complicated, and we were able to use it without recourse to the manual except for written reassurance that the thing was behaving correctly. We rate documentation satisfactory.

EASE OF LEARNING:

This program is a snap to learn — primarily because there's not that much to it. Once you know to press Alt-G to call up the menu, there's not much else to learn since Get walks you through everything.

The text editor had a couple of quirks, as mentioned, and there were a few minor points that might puzzle you at first — the on-line menu contains two options named Receive File and Capture, which seem similar though they do entirely different things.

The inherent simplicity of this product earns it a very good in ease of learning.

EASE OF USE:

Program control flows naturally from one menu screen to another. At each step you are presented with a menu of options along the bottom of the screen, invoked through the function keys. That's all there is to it. The main complication was getting the parameters needed by the setup utility, and it has on-line help. We rate ease of use as very good.

ERROR HANDLING:

Program control usually calls for input through function keys, and at those times the system only responds to the function keys — a cat could walk across the rest of the keyboard without causing concern.

There is also an Undo command usually listed as a menu option, so you can abort when things go wrong. The setup utility will not let you skip any communication parameters, so you can't go far wrong there. Get won't let you overwrite files unless you confirm that you mean it.

On the other hand, a communication program ought to be able to handle line errors and other contingencies; in these situations, Get's response was simply to wait a certain amount of time, and then quit and try again five minutes later.

Balancing Get's straightforward user error handling against its less than sophisticated handling of communications problems, we rate Get satisfactory in this category.

SUPPORT:

Telephone support appeared to consist of a person named Scot, whom you reach after calling the toll-free number listed on the back of the manual and asking for technical support.

His advice was unstinting and helpful. If he could not solve something on the spot, he was willing to experiment and call back with the results. He promised us a fix to the bug that prevented the program from working with The Source; unfortunately, it took two weeks for the bug fix to arrive, and it still didn't work.

There is a 30-day money-back guarantee. The disk itself carries a 90-day warranty on the media only. There is no copy protection. The warranty says you can modify, copy, or merge Get with another program so long as the copyright message was retained; this means you can merge it with other communications packages through their script languages.

For $25 you can order updates to the preset services up to three times in one year, as well as updates to Get. Your on-line service will not make frequent changes, so this shouldn't be a major expense. If it is, you can always write your own script.

The failure of the bug fix is offset by Get's money-back guarantee, toll-free support line, otherwise helpful technical advice, and lack of copy protection. Get earns a satisfactory rating in support.

VALUE:

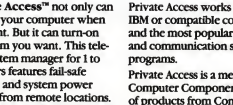
If, like a frontline infantryman, you worry constantly about incoming stuff, then Get may be helpful. You can leave it running in the background, checking for new arrivals, so you can receive your electronic mail in a timely fashion.

Otherwise, Get is a moderately priced, modestly powered communications program with a built-in text editor. There are other programs in the same price range with similar and in some cases more powerful features, such as ASCII Pro for $99.95, Backcomm for $95, Maximite Plus for $74.95, and Mirror, a clone of Crosstalk, for $69.95.

Get amounts to a plain vanilla program for a plain vanilla price — with an interesting enhancement that will be of particular interest to some users. We rate it satisfactory in value.

Iomont Wood is o free-lonce writer who speciolizes in computers and business subjects.

More than just a turn-on.



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Software Index

Software Review Index lists recent reviews; date of full review is shown. For back issues, call World Co. at (800) 544-3712 or (215) 768-0388 in Pennsylvania.

Able-1 *(Able International)* — Score: 2.8 — An inexpensive integrated package consisting of database, spreadsheet, word processor, and communications module. Not copy-protected. For the IBM PC. (7/28/86)

Acta *(Symmetry)* — Score: 5.8 — An outline processor for the Macintosh implemented as a desk accessory. Not copy-protected. (8/11/86)

Alpha/three *(Alpha)* — Score: 6.1 — A menu-driven database manager for the IBM PC that reads and writes Dbase III Plus data and index files directly. For the IBM PC. (9/29/86)

Autocad, Version 2.5 *(Autodesk)* — Score: 8.5 — A professional-level drafting program for the IBM PC. Copy-locking device. (9/29/86)

BMDPC *(BMDP Statistical Software)* — Score: 4.6 — An IBM PC version of the mainframe statistics package. Copy-protected. (9/1/86)

Clarion *(Barrington Systems)* — Score: 6.2 — A database applications development package for the IBM PC. No longer copy-protected. (8/11/86)

Clipper *(Nantucket)* — Score: 6.9 — A compiler and development environment for Dbase III and Dbase III Plus developers. Copy-protected. For the IBM PC. (9/15/86)

Dmac III *(Format Software Inc.)* — Score: 4.2. — A relational database management program for the 512K Mac and Mac Plus. Not copy-protected. (10/13/86)

Dollars and Sense *(Monogram)* — Score: 8.0 — A small-business financial management and accounting program. Not copy-protected. For the IBM PC. (9/15/86)

Easy Extra *(Micropro International)* — Score: 7.2 — A word processing program with mailing-list capability. Not copy-protected. For the IBM PC. (8/25/86)

Front Desk *(Layered)* — Score: 5.6 — A computerized office appointment book for scheduling people, places, or things. Not copy-protected. For the Macintosh. (7/21/86)

GEM Desktop *(Digital Research)* — Score: 6.7 — Desktop is a graphics-based DOS shell. The GEM applications include GEM Write, Paint, Draw, Graph, and Word Chart. Not copy-protected.

For the IBM PC. (10/6/86)

Homebase, Version 2.0 *(Brown Bag Software)* — Score: 6.7 — A memory-resident desktop utility for the IBM PC containing communications, data management, a hard disk organizer, editor, calculator, and calendar. Not copy-protected. (8/18/86)

Idea Generator *(Experience In Software)* — Score: 6.4 — Brainstorming software that helps define problems and generate ideas and solutions. For the IBM PC. Copy-protected. (9/29/86)

Insight *(Layered)* — Score: 8.1 — An accounting system for the Macintosh that also provides analysis and advice. Not copy-protected. (10/20/86)

Jazz *(Lotus Development)* — Score: 6.8 — An integrated program for the Macintosh Plus; contains spreadsheet, database, graphics, word processing. Copy-protected. (9/8/86)

Mac Lightning *(Target)* — Score: 7.6 — Version 2.0 is a spell-check program with a 60,000-word dictionary for the Macintosh. Not copy-protected. (9/22/86)

Macpublisher II *(Boston Software Publishers)* — Score: 3.9 — A desktop publishing program for the Macintosh. Copy-protected. (10/13/86)

Matchware *(Matchware Computer Services)* — Score: 5.0 — A consultant's database matching client needs against some 360 accounting programs. Copy-protected. For the IBM PC. (9/22/86)

Microsoft Project, Version 2.01 *(Microsoft)* — Score: 5.7 — A project management program for the IBM PC. Not copy-protected. (7/28/86)

More *(Living Videotext)* — Score: 8.5 — An outline processor with additional features such as a chart maker. Not copy-protected. For the Macintosh. (9/15/86)

PC SAS *(SAS Institute)* — Score: 4.8 — An IBM PC version of the mainframe statistics package. Not copy-protected. (9/1/86)

Prime Time *(Wiseware)* — Score: 7.0 — A time management program for the IBM PC, integrating to-do lists with task lists, a calendar, alarm clock, automatic dialer, and eight kinds of reports. Not copy-protected. (8/25/86)

Rbase System V *(Microrim)* — Score: 7.5 — A full-feature relational database and development system for the IBM PC. Not copy-protected. (9/22/86)

Referee *(Persofi)* — Score: 7.9 — A program that manages memory-resident programs by selectively activating and deactivating them. Not copy-protected. For the IBM PC. (8/18/86)

Reports Plus *(Softsync)* — Score: 2.6 — A general-purpose query and report generator that works with Dbase, 1-2-3, Multiplan, DIF, and ASCII files. Not copy-protected. For the IBM PC. (8/4/86)

Somno Word III *(Samna)* — Score: 5.7 — A full-feature corporate word processing program. Not copy-protected. For the IBM PC. (8/4/86)

Simple 2.1 *(Software Merchants Unlimited)* — Score: 4.3 — A completely menu-driven program for creating database applications. Not copy-protected. For the IBM PC. (8/4/86)

The Spreadsheet Auditor *(Consumers Software)* — Score: 8.2 — A 1-2-3 add-on program that reads and analyzes files produced by 1-2-3 or Symphony to check for possible error conditions. Not copy-protected. For the IBM PC. (10/13/86)

SPSS/PC+ *(SPSS)* — Score: 8.2 — An IBM PC version of the mainframe statistics package. Copy-protected. (9/1/86)

SQZ *(Turner Hall)* — Score: 7.9 — SQZ compresses 1-2-3, Symphony, and VP-Planner worksheet files to an average of 15 percent of their original size, which frees up space on your hard disk. Not copy-protected. For the IBM PC. (9/8/86)

Statgraphics *(STSC)* — Score: 5.9 — A statistics package for the IBM PC. Not copy-protected. (9/1/86)

Supercalc 4, Version 1.0 *(Computer Associates)* — Score: 8.1 — An integrated spreadsheet program for the IBM PC. Not copy-protected. (8/11/86)

Systat *(Systat)* — Score: 8.5 — A statistics package for the IBM PC. Not copy-protected. (9/1/86)

Tapestry *(Torus Systems)* — Score: 6.8 — A network management and user interface package for LAN hardware supporting the IBM Netbios. Not copy-protected. (10/13/86)

Tas-Plus *(Business Tools)* — Score: 3.2 — A relational database manager and development system for the IBM PC. Not copy-protected. (10/6/86)

Tarnado Notes *(Micrologic)* — Score: 3.4.— A RAM-resident program simulating a random pile of notes on your desk. Not copy-protected. For the IBM PC. (10/20/86)

VCN Concorde *(Visual Communications Network)* — Score: 6.9 — A graphics package that offers almost every kind of graphics capability. Copy-protected. For the IBM PC. (8/18/86)

Windoword *(Arrays)* — Score: 6.2 — A windowing word processing program for the IBM PC. Not copy-protected. (10/6/86)

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Sperry has apparently compensated for its slow drives with some fancy engineering.

Sperry Micro IT

'Baby IT' Offers AT Power in a Tidy Package

Small-Footprint Micro Sacrifices Expandability, Not Speed

By Stephen Satchell Review Board

The Sperry Micro IT is the smaller brother to the Sperry PC/IT computer, one of the highest scoring IBM PC AT compatibles we have tested. (See "Sperry Powerhouse Outperforms PC AT," April 7, 1986.) This small-footprint machine sacrifices a number of slots to make a tidy, less expensive desktop package suitable for filling out a network or other distributed system.

Good software compatibility and high performance is marred by some small problems with hardware compatibility that could affect users upgrading from PC and PC XT equipment.

The Sperry Micro IT, smaller brother to the Sperry PC/IT, measures 15 inches square and 5 inches high. The 8-MHz AT-style machine is suitable for filling out a network.

FEATURES:

This is one speedy computer. Its zero-wait-state 80286 processor whips along at 8 MHz. The 80287 math coprocessor is also rated at 8 MHz.

Standard memory is 512K; it can be expanded to 1,536K with a board that piggybacks directly off the system board instead of using an expansion slot. This preserves fast access to the extra memory. More memory can be added using the expansion slots. Sperry offers a 2-megabyte memory board.

There are only five slots in this machine, compared to eight in the typical IBM PC AT compatible. Three are AT-style 16-bit slots, and two are XT-style 8-bit slots. The floppy controller is built into the system board, so no slot is needed for it. The hard disk controller requires one 16-bit slot while the display adapter requires one slot, usually of either type. If you plug the display adapter in an 8-bit slot, that leaves one 8-bit slot and two 16-bit slots.

You can have only two disk devices. Our machine came with a 1.2-megabyte floppy disk drive and a 20-megabyte disk. Sperry also offers a 360K floppy drive. All drives used in the Micro IT must be half height, due to limited space.

The system board has a serial port (with male DB25 connector) and an IBM PC-style parallel or printer port. The serial port can be selected as port 1 or port 2. Sperry also has provided synchronous communications capabilities in the Micro IT serial port.

The Micro IT also features a reset switch, keylock, and a battery-powered clock/calendar on the system board.

Three keyboards are available for the Micro IT: an XT-style keyboard, an AT-style keyboard, and a keyboard similar to the one used on the DEC Rainbow 100 system and the new IBM AT.

All this is in a package 15 inches square and 5 inches high.

PERFORMANCE:

The Micro IT was full of surprises. After being told that the Sperry has a slow hard disk, we had visions of another "half AT" system that saves money by sacrificing drive performance. But Sperry has apparently compensated for its slow drives with some fancy engineering.

Specifically, Sperry told us that the hard disk is rated no faster than 65 milliseconds for average seek time. Yet in our hard disk benchmark study, the Sperry system consistently beat out the 40-ms CMI 20 that came in our original IBM PC AT. Sequential access came out about 40 percent faster, while random access rated around 15 percent faster.

Computing speed tests showed the kind of results that we expected from an 8-MHz PC running with zero wait states: The Micro IT was 77 percent faster than the original IBM PC AT and 33 percent faster than other 8-MHz systems using one wait state, such as the NEC APC IV. Using wait states, an 80286 computer introduces an idle cycle for every third clock interval. This lets a computer vendor use slower and less expensive memory chips — but it also slows the computer. The Micro IT uses no wait states, which requires Sperry to use more expensive memory chips, but which also improves performance by 33 percent.

Software compatibility was everything we could ask for. We tried Crosstalk XVI 3.6, Desqview 1.20, Framework II 1.0, Lotus 1-2-3, 1A, PC-Talk IIIC, Pro-Yam 14.15, Reflex 1.0, Sidekick 1.56A, Smartcom 2.1, and Windows 1.01 without finding any problems.

In hardware compatibility, we were able to use the Intel Above Board expanded memory board for the AT without difficulty. But we couldn't get either our old Hayes 1200B or new Leading Edge 1200B internal modem to work in the Sperry.

We talked to both Sperry and Hayes and were unable to pin down the nature of the problem. Sperry said a recent model of the Hayes modem is missing a specific register that the Sperry machine checks, but Sperry can provide a patch to solve the problem and will be upgrading the BIOS on the Micro IT on future systems. But this isn't the problem with our 2-year-old three-switch Hayes modem, which was accepting commands and apparently dialing, but didn't send back any characters. Technicians at both Hayes and Sperry guessed the problem to be with the system interrupts. We are unable to determine the underlying problem or its seriousness and therefore can't evaluate its impact on the performance category. As further information becomes available, we will keep our readers informed.

The Sperry Micro IT conforms to the FCC limits for radio frequency emissions for a Class B (residential) computing device. We noted no TV or radio interference during our tests.

Setting aside the issue of the nonworking modems, whose impact cannot yet be determined, we judge that overall, Sperry has done a nice job with this machine. Its speed is as good as or better than comparable systems, and nothing in the realm of raw power has been sacrificed to make this "baby IT." We rate the Micro IT very good in performance.

DOCUMENTATION:

Sperry has changed its manual appearance quite a bit. Unfortunately the change seems to be at the expense of organization. Installation instructions were intermixed with operating instructions. While this didn't affect us much, novices will have to wade through the manuals twice, once for installation instructions, and again for operating instructions.

The documentation is, however, complete. All three manuals — *System Guide, MS-DOS User's Guide,* and *Basic*

Also Included In This Section

- **Traveling Software Complete Laptop System 60**
- **Hardware Index 64**

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INFO WORLD THE PC NEWS WEEKLY

The first word on the microcomputing revolution.

Scott Mace. Senior writer and mid-Atlantic bureau chief. His articles have appeared in the International Herald Tribune and the Village Voice. Was InfoWorld's columnist covering games and entertainment software. Author of InfoWorld's Essential Guide to Atari Computers. With InfoWorld since 1981. Current beat includes federal legislation, computing in government and finance.

User's Guide — have the information you need to use this system. This is the first manual we've seen in awhile that recommends regular cleaning of the floppy disk drive.

Missing from the documentation package are any quick-reference cards, on-line help, or tutorial to system or software. The documentation is complete, and we rate it satisfactory.

EASE OF USE:

Once we got the system set up and running, we found it very comfortable to use. The keyboard lacks audible feedback, but we found no problems in keying accurately. The high-resolution graphics display and adapter provided with our unit, compatible with the IBM EGA, showed crisp, easy-to-read text and good graphics.

The reset switch is well-protected on the front panel. There is also a two-position key switch that mechanically and electrically locks the system unit.

This is one of the few systems where the system board configuration switches are accessible without removing the system unit cover, and the only one besides the Epson Equity II where the switches were accessible from the front, concealed behind a small door. Only the power switch is on the rear panel.

Expanding the system is relatively simple. Expansion cards mount sideways, with the bracket to the back. Any card that fits the PC AT will fit this machine. We found the space on the back for external connectors is smaller than most AT compatibles on the market — the telephone connectors on our Hayes 1200B would not fit in the opening without binding. Installing the 80287 math coprocessor requires significant disassembly of the system unit because of the cramped quarters in the system. But the chip itself slips right into a socket.

Overall, users should find this a comfortable system to use hour after hour. We give the Micro IT a very good for ease of use.

SETUP:

We found this system simple to set up. Our total time from boxes to a working system was 20 minutes. The installation instructions are good, although you do have to wade through operation instructions at the same time.

For very experienced users, there is a single large sheet that shows how to set up a system. This does in one 8-by-11-inch page everything covered in the manual, but without the detail.

Like most AT compatibles, most system options are set up via software instead of with hardware switches.

The single-sheet setup instructions for experienced users earn this machine a bonus. We rate setup as very good.

SERVICEABILITY:

Just as it did with its PC/IT, Sperry has brought the customer into the service procedure. The result is reduced system downtime, improved serviceability, and a better informed user.

Sperry offers a one-year warranty for the Micro IT. Unlike almost all other manufacturers, Sperry also warrants the software media for one year, instead of limiting it to 90 days. When something breaks, you work with the Sperry customer support staff — available toll free — to isolate the point of failure. If the problem requires replacing parts, the technician will either direct you to a local Sperry office or have you ship just the failed part to a service warehouse.

An integral part of the service policy is the diagnostics program provided with the system. Like the PC/IT diagnostics and unlike the diagnostics of most competitors, the Micro IT's diagnostics are designed to be run by the customer. Without this essential component, the service system would not work as well as it does. Computers can be troublesome beasts; when they go on the blink, the user can become discouraged trying to figure out whether it's a hardware, software, or user problem.

Our inspection of the Micro IT system unit showed good attention to manufac-

INFO WORLD THE NEWS WEEKLY

REPORT CARD

PERFORMANCE COMPUTERS

SPERRY MICRO IT

7.1

	Unacceptable	Poor	Satisfactory	Very Good	Excellent
Performance	☐	☐	☐	☒	☐
Documentation	☐	☐	☒	☐	☐
Ease of Use	☐	☐	☐	☒	☐
Setup	☐	☐	☐	☒	☐
Serviceability	☐	☐	☐	☐	☒
Value	☐	☐	☒	☐	☐

SUMMARY

A smaller version of the high-performance IT, the Sperry Micro IT is a fast IBM PC AT compatible that sacrifices only the number of expansion slots to reduce costs and size. Even the supposedly slow hard disk is unexpectedly fast. The Micro IT is meant for those who need AT performance but don't need a lot of expandability.

PRODUCT DETAILS

List price, $2,345 (base system) with 512K, serial and parallel port, MS-DOS 3.1, GW-Basic, diagnostics software, clock calendar. Model tested ($5,428) adds keyboard, 1.2Mb disk drive, 20Mb hard disk, 640K RAM, EGA-compatible graphics card, and monitor. Sperry Corp., Township Line and Union Meeting Roads, Bluebell, PA 19424; (215) 542-4213.

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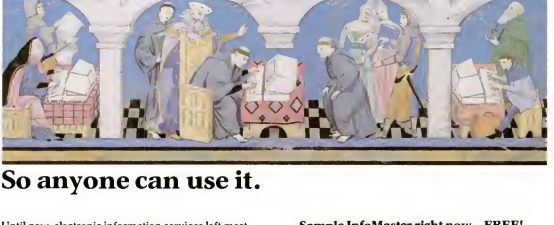

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turing and design. We found no hot spots or other potential reliability problems.

We asked the technical support staff questions about the Micro IT on several occasions. In each instance, we received good answers. Even when the technician had to "call right back," we were surprised to get a return call in minutes with the correct information.

We are impressed by Sperry's service. We especially like the way Sperry saves both itself and its customers money and trouble by having the user isolate the faults where possible. It's an enlightened attitude, and helps earn Sperry an excellent in serviceability.

VALUE:
Sperry's pricing of this system looks like a Chinese menu. This is good news for systems integrators since they can purchase a shell and add their own floppy drives, hard drives, RAM, and math coprocessor. Corporate buyers can also purchase mix-and-match systems.

In single-unit quantities, the Micro IT list prices can be a little expensive. A basic monochrome system with 20-megabyte hard drive lists for around $4,500; the most direct competitor, Televideo, lists its 8-MHz Telecat 286 in a similar configuration for around $3,000. The 8-MHz IBM PC AT, on the other hand, is more than $5,000 in this setup.

On the other hand, Sperry's machine is one-third faster than most of its competitors. More importantly, Sperry spokesmen like to convey the distinct impression that for volume purchasers, the firm chops prices like rug dealers. "Nobody actually pays list price," one spokesman insisted, soft-pedaling the quoted prices. However, it was not possible to get solid information on typical discounts.

We are concerned about the issue of compatibility with add-on boards, due to the speed of the machine. When we talked to Sperry about it, the technicians were vague about the reasons. Third-party boards become a gamble.

This machine is designed primarily for environments in which full AT performance is demanded, but full AT expandability can be sacrificed — as, for example, when serving as a node on a network. In this situation, the value is satisfactory. For those able to strike bargains, value may be better.

Stephen Satchell has been involved in computing since 1971 as a systems designer and product programmer.

Complete Laptop System

Traveling Laptop Is Highly Portable But Lacks Speed, Memory Capacity

By Sherwin Levinson Review Board

As a marketing gimmick, Traveling Software's positioning of the Complete Laptop System is clever. The firm calls its $799 combination of an NEC PC-8201A laptop with a portable external disk drive "an economical and powerful alternative to the new 12-pound, $1,995 IBM PC Convertible." Advertising headlines trumpet, "6 Pounds of IBM Compatibility!"

Take that claim too literally and you'll be gravely disappointed. The Complete Laptop System offers an LCD screen 40 characters wide and eight lines long, simple software, limited RAM, and a tiny, slow disk drive that holds a mere 100K of data and is little more than a glorified cassette player. PC compatibility is achieved by transferring data from the system's disk drive to an IBM PC in a way not much different from using a modem to transfer data. If you really need the power of a desktop PC in your lap, this is not the way to get it.

But not everybody really needs that kind of power, not even those looking hungrily at the IBM PC Convertible or

Can cut disk access time in half
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Loads with the DOS — always ready as a background program (like Sidekick) to accelerate disk access. You do nothing — everything is automatic.

You are going to be so amazed when you start to work with LIGHTNING™ installed. Most programs that frequently access the disk (hard disk or floppy) are made instantly faster — up to 2 to 4 times faster.

It is so easy to install and you never have

Disk instensive programs (like databases) can run 2 to 4 times faster.

to do anything again; it does it all for you — like lightning.

LIGHTNING™ comes to you on a diskette. You simply load it onto your DOS diskette if you are using floppies, or if you have a hard disk, into the DOS area. Simple A-B-C instructions let you get it started the first time in five minutes. Then it is always ready, working automatically in the background any time you boot up. (The copy protected version is a "key diskette" and doesn't boot with the DOS.)

What's it like to use it? If you have ever worked with or seen a RAM Disk you know what a difference speed can make when working with any program that frequently accesses the disk. Well, LIGHTNING™ enables those programs to approach the same rapid speed as a RAM Disk, but it does it without the disadvantages. With a RAM Disk there is a constant danger that you can lose your precious data if you forget to copy it back to the disk drive. With LIGHTNING™ you just use your programs normally. You don't have to remember anything.

LIGHTNING™ has a fun feature that shows you just how fast you're operating. Any time you want, with a couple of keystrokes you can see a screen that keeps a record of how many times you've accessed the disk, and how much time LIGHTNING™ has saved you. It's fun to check it out, and it's always astounding. Speed-up varies, depending on your application, frequency of disk access, and amount of RAM you can allocate. For example, best results occur with indexed databases.

When you work with a database program or most word processors, or any time you need to frequently load files into RAM or save them back, you are accessing your disk. It is such a pleasure to cut those times often in half and up to one-fourth.

Spreadsheets can speed up their loading and saving. Recalculation speed is not affected.

Another plus — LIGHTNING™ fully exploits Above Board™ memory for PC's with that addition.

PCSG since early 1983 has dominated

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the lap portable market with ROM software such as Lucid spreadsheet and Write ROM that reviewers rated as excellent. We are proud to enter the IBM PC market with LIGHTNING™. It's a great product that we not only enjoy offering, but enjoy using on our own PC's. It will support IBM PC, XT, and AT.

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REPORT CARD

BASIC COMPUTERS
TRAVELING SOFTWARE'S LAPTOP SYSTEM

4.6

	Unacceptable	Poor	Satisfactory	Very Good	Excellent
Performance	☐	☐	☒	☐	☐
Documentation	☒	☐	☐	☐	☐
Ease of Use	☐	☒	☐	☐	☐
Setup	☐	☐	☐	☒	☐
Serviceability	☐	☐	☒	☐	☐
Value	☐	☐	☒	☐	☐

SUMMARY

This system is a 6-pound NEC PC-8201A laptop with a 40-by-eight LCD, Ultimate ROM II, portable external disk drive, and software to transfer files with your desktop PC. It's no replacement for a full-feature IBM PC-compatible laptop, but as a portable electronic notebook, it does the trick as well as its competitors.

PRODUCT DETAILS

List price, $799 (base model). Model tested includes NEC PC-8201A laptop computer with 32K of RAM, 32K of ROM, 32K Ultimate ROM II applications chip; 100K 3½-inch portable external disk drive; Lap DOS software and cable. Traveling Software, Inc., North Creek Corporate Center, 19310 North Creek Parkway, Bothell, WA 98011; (800) 343-8080 or (206) 483-8088 in Washington.

the Toshiba 1100 Plus. After several long journeys lugging a 12-pound laptop, the 6 pounds of the NEC and the fact that it can fit, disk drive and all, into a briefcase, might grow in appeal to the point where you'll ask yourself whether you really need to be able to run Lotus 1-2-3, or whether what you really need is an electronic notepad that is really portable.

Hype aside, the Complete Laptop System offers a lot of portability, a little bit of power, and a reasonable price — despite appalling documentation that hinders ease of learning, especially with some of the advanced features.

FEATURES:

Traveling Software's Complete Laptop System includes the NEC PC-8201A laptop portable computer, which is similar in many ways to Radio Shack's discontinued Model 100 laptop. The system comes with 32K of RAM, a 40-character-by-eight-line LCD, and three programs built in: Basic, a text editor, and a communications program. Added to this package is Purple Computing's 3½-inch portable external disk drive, an AC adapter for the disk drive (but not one for the NEC laptop), four AA batteries for the NEC (but no batteries for the disk drive), a slipcase for the NEC, and a carrying case that accommodates both the NEC and disk drive. Unlike the Model 100, The system does not have a built-in modem. Instead, Lap DOS, which consists of a cable adapter and software on a 5¼-inch MS-DOS disk, makes it possible for an IBM PC to run the laptop's external drive.

In addition to the software already built into the NEC, you get Traveling Software's Ultimate ROM II, a chip installed in the NEC that adds an enhanced word processor, relational database, spelling processor, and display enhancer. (There is no spreadsheet.) Also included is the firm's TS-DOS disk operating system to run the external disk drive, and a disk with 15 NEC programs, and 10 sample files for use with the programs on the Ultimate ROM II.

An arm load of manuals and a cassette with an audio tutorial for the Ultimate ROM programs round out the package.

(An alternative version of the package substitutes Tandy's Model 102 laptop, which has an internal 300-bps modem, for the NEC; this version costs $899.)

PERFORMANCE:

Like the Radio Shack Model 100, the NEC laptop is designed as a basic note-taking computer that sacrifices capability for extreme portability. Features of the programs compare well to programs available for desktops.

The usefulness of the software is limited by the underlying hardware's processing speed, memory capacity (32K compared to 512K or 640K for bigger laptops), and display size (eight lines by 40 columns, or 60 columns with the special software). If you are accustomed to an IBM PC-compatible system, you'll find this system slow at everything.

The disk only holds 100K of information, and operation is slow compared to desktop systems. For example, a 13K text file took 40 seconds to store to disk from the NEC's RAM. By comparison, saving the same file from Sidekick to disk on an IBM PC takes 17 seconds.

There are software deficiencies as well. One annoying feature turns the NEC off automatically if no key is pressed for 10 minutes. If automatic shutoff occurs while you're editing a document with ROM-View 80 on, turning the machine back on brings up the initial T-Word screen. You don't lose any underlying data; however, since the machine is still in text editing mode and the display isn't showing the underlying text, you can easily alter or destroy large blocks of text before you realize it.

Lap DOS is handy, works smoothly, and allows easy transfer of data between the portable disk drive and an IBM PC-compatible machine. The Lap DOS program is supplied on a standard 5¼-inch PC-DOS disk. The PC's display shows both the files in the current PC directory and the files on the portable drive. You select the file you wish to work on by highlighting it with the cursor keys, then entering the letter for the desired action. Copying the same 13K file mentioned above from the portable disk drive to an IBM PC floppy took 54 seconds, painfully slow by PC standards, but about the same speed as transferring the data by directly connecting the NEC and the desktop together, and using communications software to transfer the file. File transfers in

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Second, it is advanced. The *BREAKTHRU 286* replaces the CPU of the PC or XT with an 80286 microprocessor that is faster than the one found in the AT. A 16K cache memory provides zero-wait-access to the most recently used code and data. In benchmark tests the card accelerated software programs—both custom and off-the-shelf anywhere from 200% to as much as 700%. Acceleration factor is up to 7.8x on the Norton SysInfotest! Wow!

Third, you have full compatibility. All existing system RAM, hardware, and peripheral cards can be used without software modification. It operates with LAN and mainframe communication products and conforms to the Lotus/Intel/Microsoft Expanded Memory Specification (EMS). Software compatibility is virtually universal.

Fourth, it is the best there is. There are several other boards on the market. Some are priced about the same as the *BREAKTHRU 286* and some are cheaper. We at PCSG have compared them all, but there simply was no comparison. What we discovered is that many cards being sold offer only a marginal speed up in spite of their claims. We found some to be merely versions of the obsolete 8088 or 8086, and others to be just poorly engineered. The 8MHz *BREAKTHRU 286* is unequivocally the best executed and most completely reliable speedup board manufactured today.

PCSG has since early 1983 dominated the lap portable market with ROM software such a Lucid spreadsheet and Write ROM that reviewers rated as excellent. We were proud to successfully enter the IBM PC market last year with disk access speedup software. Now we are so pleased with the *BREAKTHRU* speedup card. We use them on our own PC's to make them faster than AT's. We are really excited about this product.

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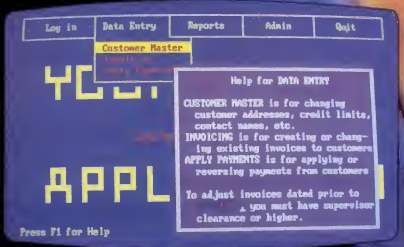

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the other direction proceed at approximately the same speed with Lap DOS, but took twice as long when using the direct-connect method.

The system is amazingly lightweight and compact. You can carry the computer in your hand, and fit the system including disk drive in your attache case with room to spare. At 6 pounds, plus 2 pounds for the external disk drive, it weighs a little over half as much as the full-feature PC Convertible.

Compared to a desktop system, or to a full-feature portable like the IBM PC Convertible, the Complete Laptop System isn't even in the race, so if you really need to write and format the Great American Novel, or access the vast library of MS-DOS programs, this isn't the system to do it on.

But as a note-taking computer, the Complete Laptop System is perfectly adequate. You can go on the road, write 10 or 15 pages of notes at a time, maintain a name-and-address database or a to-do list, offload excess data to the compact disk drive, and transfer raw data to your desktop when you get home without mastering the intricacies of data communications. If that's all the power you need to carry with you, you'll find the performance of this 6-pound package satisfactory.

DOCUMENTATION:

The Complete Laptop System comes with 12 separate pieces of documentation, which include the manuals for the separate pieces of software and hardware in the package plus a four-page piece that's the only documentation specific to the system as a whole. Having the documentation in so many separate, uncoordinated pieces makes the system difficult to learn and to work with. Complicating things further, the software manuals refer to more than one machine, making them tough to follow. Explanations are often unclear.

Several of the manuals have an update section bound into the manual following the title page. The update tells you to ignore various parts of the body of the manual and instead refer to parts of the update or to other separate pieces of documentation. This practice makes the documentation even more cumbersome.

While this is not the worst documentation we've ever seen, it comes close. The nature of the system obliges users to learn software and hardware different from that used on their desktop PCs. Good documentation integrating all the disparate parts of this package, and helping the PC user over the learning curve, would seem almost a necessity. Instead, the documentation for this system is so misleading and makes the system so difficult to use that we must rate the documentation as unacceptable.

EASE OF USE:

The unacceptable documentation makes this system harder to use than it already is. There are too many things to remember and too many inconsistencies from program to program, which proper documentation would, if not correct, at least improve.

The keyboard layout is different enough from that of the IBM PC that you may have trouble getting used to it. The feel of the keys is good, but the placement of some of the standard keys is different. The software is all right, but has some cumbersome aspects. In T-Word, for example, you can select a display of the files on disk. But there's no way we could find to avoid then loading one of those disk files into the editor. Also, only the default print-formatting options are saved for T-Word, so you need to respecify anything different from the default every time you want to print.

The software eccentricities and the unacceptable documentation combine to make this system much more difficult to use than it should be. we therefore can rate T-Word's ease of use as no better than poor.

Traveling Software's $799 Complete laptop System includes on NEC PC-8021A portable micro, 3½-inch external disk drive, carrying case, AC adapter, and software.

PETER NORTON ON RECORD FOR FLICKERFREE:

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from Peter Norton's recent column - PC Magazine, issue #13, 6/86

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SETUP:
The Ultimate ROM II and 32K of RAM are preinstalled in the NEC. There's essentially no setup required, though it may take you a while to figure that out because there are so many separate pieces in the box. The NEC comes in its own original packaging with its own manuals. The same is true of the disk drive. There are separate packages for the Ultimate ROM, TS-DOS, and Lap DOS.

Once you find the Quick Start Instructions, setup proceeds quickly — all you need to do is install batteries and connect the disk drive. While the AC adapter fits the AC connector of the NEC, making a wrong connection would probably not do any permanent damage because the AC adapter's voltage is lower than that required by the NEC.

This system is trivially easy to set up; we rate setup as very good.

SERVICEABILITY:
The NEC PC-8201A is an established laptop with a reputation for ruggedness — we know of several in portable use for over two years with no problems. We had no prior experience with Purple Computing's products, but their disk drive is solidly built and provided trouble-free operation. Both manufacturers provide 90-day warranties.

(The Tandy Model 102 laptop is serviced by Tandy at any one of its Radio Shack Computer Centers.)

Traveling Software also provides a 90-day warranty on the ROM. More significant is their 30-day money-back offer: "If you are not satisfied, you may return [this product] for a full refund."

We had mixed results when calling for support. Digging through all the printed materials, we found a phone number to call if any parts were missing from the package (toll free, but erroneous — it's actually the number of a real estate agent in Hawaii) and a number to call for help (toll call) Monday through Friday, 9 a.m. to 5 p.m. Pacific time.

We noticed yet another number, toll free, printed on the sample program diskette. When we called, a voice answered "Traveling Software Order Line," but we were told that a technician would call back to answer our questions. Our call was never returned. We tried the help number; the person answering the phone was unfamiliar with the Complete Laptop System package and there was nobody available who was familiar with the system, even though it was 10:30 a.m. local time. A promised return call was never received. On other occasions, however, we were connected immediately with a technician who was able to answer our questions.

The telephone support is uneven and the warranties are limited to 90 days. On the other hand, the underlying hardware is rugged and reliable, and, with a money-back guarantee, the Traveling Software Complete Laptop System easily earns a satisfactory in support.

VALUE:
The 6-pound Complete Laptop System is priced at $799. This is half the price of even low-end PC-compatible portables, like the 10-pound Bondwell 8 (see "Bondwell 8: Convenient Portable Is Good Value," August 4, 1986), let alone the 12-pound, $1,995 IBM PC Convertible (see "IBM PC Convertible: Sturdy, No Surprises," August 18, 1986). That makes it sound like a bargain, but there are substantial trade-offs. The Complete Laptop System has limited memory and display, can't run MS-DOS software, and has a slow disk drive used as no more than a faster cassette drive. Most important of all, the PC-compatible laptops use the same software you're already using on your desktop system.

At the other end of the price spectrum, the Tandy Model 102, similar to the NEC computer but with a built-in 300-bps modem, costs $499 alone with 24K of RAM, but lacks an external drive or Ultimate ROM; many will find it sufficient for their needs.

It's an open question whether jazzing up this basic, simple package is worthwhile. It could be argued that those needing to use the laptop intensively enough to require the disk drive and enhanced software will soon run out of patience with the inherent slowness, and capacity and software limits of such a machine.

The bottom line is that this is not quite the terrific bargain it might first appear, and it won't suit every user as the complete alternative to a more expensive PC-compatible laptop. For those needing an electronic notebook, the price is low enough to be fair; so we rate this system as a satisfactory value.

Sherwin Levinson has been working with computers for more than 20 years, specializing in computer conferencing, telecommunications, and user support.

DVORAK SAYS: "I advise you to run (don't walk) to the phone or Post Office and order a copy of the Mace Utilities for the IBM PC."
InfoWorld, 3-24-86

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Hardware Index

Hardware Review Index lists recent reviews; date of full review is shown. For back issues, call World Co. at (800) 544-3712 or (215) 768-0388 in Pennsylvania.

ABM X2C *(ABM Computer Systems)* — Score: 7.7 — An EMS/multifunction card for the IBM PC with an AC adapter to maintain data when the computer is turned off. (7/21/86)

AT&T 6300 Plus running MS-DOS *(AT&T)* — Score: 3.6 — An 80286-based desktop computer. (7/21/86)

AT&T 6300 Plus running Simultask *(AT&T)* — Score: 7.6 — An 80286-based desktop computer that runs MS-DOS as a task under Unix System V. (9/29/86)

Bondwell 8 *(Bondwell Industrial)* — Score: 5.9 — An IBM PC-compatible laptop computer with one 3½-inch disk drive and an LCD screen. (8/4/86)

Compoq Deskpro 386 *(Compaq)* — Score: 8.8 — The first of the MS-DOS-compatible 80386-based desktop computers. (10/20/86)

Computerland XT *(Computerland)* — Score: 6.2.— An IBM PC-compatible desktop that converts to an AT compatible by switching add-on cards. (10/13/86)

Dotavue 25 *(Dataviue)* — Score: 7.3 — An IBM PC-compatible portable with LCD and 20Mb hard disk. (8/25/86)

DOS-73 Coprocessor *(AT&T)* — Score: 4.5 — A board adding MS-DOS compatibility to the AT&T 7300 Unix desktop computer. (6/23/86)

Epson Equity II *(Epson)* — Score: 6.0 — An IBM PC-compatible desktop with a faster V-30 processor. (9/8/86)

Epson Equity III *(Epson)* — Score: 4.0 — An AT-compatible desktop computer. (6/9/86)

Gridcose 2 *(Grid Systems)* — Score: 5.5 — An IBM PC-compatible laptop computer. (6/16/86)

Hordcord 20 *(Plus Development)* — Score: 8.3 — A 20-megabyte hard disk on a card for the IBM PC. (8/11/86)

Hercules Graphics Cord Plus *(Hercules Computer Technology)* — Score: 6.7 — An enhanced monochrome graphics card for the IBM PC. (9/1/86)

Intel PS/AT *(Intel)* — Score: 6.2 — A version of Intel's expanded memory board for the AT that includes serial and parallel ports. (10/27/86)

Loserwriter Plus *(Apple Computer)* — Score: 7.0 — The upgraded 300-dpi Apple laser printer adds seven built-in font groups. (8/25/86)

Leoding Edge 12008 Model L Modem *(Leading Edge)* — Score: 6.1 — An inexpensive 1,200-bps Hayes-compatible half-card modem for the IBM PC. (10/13/86)

NEC APC IV *(NEC)* — Score: 6.6. — An 8-MHz AT-compatible desktop computer. (10/6/86)

NEC Multisynch Monitor *(NEC)* — Score: 8.1 — A color graphics monitor for the IBM PC that works with a wide range of graphics boards, including CGA, EGA, and PGC. (10/27/86)

Moch 10 *(Microsoft)* — Score: 6.0 — A 10-MHz 8086-based accelerator board intended to speed up Microsoft Windows and other programs. (10/6/86)

Okidota Microline 292 *(Okidata)* — Score: 8.2. — An 18-pin dot-matrix printer. (10/6/86)

Panosonic KX-P1592 *(Panasonic)* — Score: 5.2 — A 9-pin, wide-carriage dot-matrix printer. (10/20/86)

Porodise Autoswitch EGA *(Paradise Systems)* — Score: 7.4 — An EGA-compatible graphics board for the IBM PC. (7/28/86)

PC Convertible *(IBM)* — Score: 5.4 — An IBM PC-compatible laptop computer with LCD and 3½-inch drives. (8/18/86)

QMS Kiss Loser Printer *(QMS)* — Score: 5.6 — A low-cost laser printer with limited graphics capability. (8/18/86)

Quodram Quodloser *(Quadram)* — Score: 6.6 — A laser printer with full-page 300-dpi graphics capability. (6/23/86)

Quietjet Plus *(Hewlett-Packard)* — Score: 5.5 — A one-color ink-jet printer. (9/18/86)

Stor Micronics NL-10 *(Star Micronics)* — Score: 4.6 — A 9-pin dot-matrix printer. (9/29/86)

Softstrip System Reader *Cauzin Systems)* — Score: 6.2 — An optical scanning and printing device that stores data on strips of paper. (6/30/86)

Telecot-286 *(Televideo)* — Score: 6.8 — An 8-MHz AT compatible desktop computer. (9/22/86)

T1100 Plus *(Toshiba)* — Score: 7.5 — An IBM PC-compatible laptop computer with LCD screen and 3½-inch drives. (9/15/86)

Vutek EGA *(Vutek Systems)* — Score: 6.7 — An EGA-compatible color graphics card for the IBM PC. (7/14/86)

Zenith Z-200 *(Zenith Data Systems)* — Score: 6.9 — A high-performance 6-MHz IBM PC AT compatible desktop computer. *Category: Performance Computers.* (8/4/86)

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UNIX FILE LIMIT IS A FEATURE

I take exception to your characterization of the file size limit in Simultask ("With Simultask, 6300 Plus Is Transformed," September 29). You say Simultask would not permit you to build a file larger than 1.2 megabytes. This has nothing to do with Simultask. The file size limit is related to what is known as the Ulimit, which is a feature of Unix. This is a *real* operating system. CPUs like the 80286 require real operation systems to realize their full potential. And with real computers, you limit the file size to keep mischievous users from hogging the disk space. Remember, we are talking about a *multiuser* system, and protective measures are required. This *feature* can be changed with one command at any time by the appropriate user.

In regard to the Office window being slow, why didn't you review the machine maxed out with a full 7 megabytes of RAM? Of course, it's a little slow with only 1.5 megabytes of RAM; you're running Unix, MS-DOS, Simultask, and application programs all at the same time.

Everybody is making a big hoopla about the Compaq 386 machine, saying it is the first computer to realize the potential of the Intel chips. AT&T has already done it with the 6300 Plus, but you guys ignore this fact, or you just don't get it!

Cosmo Lee
Multiuser Computer Systems
New York

Your review says that the AT&T PC Plus reboots MS-DOS each time DOS is loaded from Unix. This need not be the case: The Message Window key, or the Control-Alt-Backspace key sequence, allows the user to bounce back and forth between Unix and MS-DOS.

Larry Furman
Brooklyn, NY

STATGRAPHICS LIMITS NOT SEVERE

Your September 1 Special Report and review on Statistics Software shows a refreshing understanding of the important criteria for users of statistics software.

However, your comments on Statgraphics' data capacity are incorrect. You state that the product "allows only 64K of memory to be used for storing variables." In fact, storage for variables is limited only by the user's available disk space. The 64K limit is not a limit on memory (RAM) or disk storage, but a limit on the size of a single variable. In practical terms, this means only that a single variable cannot have more than 8,000 floating-point cases.

With regard to data capacity, it is also critical to point out the trade-offs between capacity and flexibility, given the current state of PC technology. As you noted, "... with statistics on a personal computer, you are free to sort, plot, or test your data creatively. You can ask affordably the "what if" questions that yield valuable findings."

It is for this type of analysis that Statgraphics was designed and optimized. The ability to perform "on-the-fly" transformations and to suspend one procedure and move to another are examples of the unique environment Statgraphics provides. These features require holding data entirely in memory, which (given the present hardware/operating system limit of 640K usable RAM) limits somewhat the size of variables that can be analyzed.

But these limits are not as severe as you stated. Nor is data capacity a critical issue for users with moderate-size data sets who value the interactive environment, the close integration of graphics with the analyses, and the breadth of graphics capabilities.

Because of the timing of your review, you looked at Version 1.2. Version 2.0 is now available, and we want to update you on new capabilities in the latest release. These include the ability to merge and split data files, log-linear analysis, repeated-measures analysis, analysis of covariance, and a posteriori ANOVA tests (Scheffe, Tukey, etc.). We share your belief in the "awesome potential" of Statgraphics and want to do everything we can to fulfill that potential.

Barbara A. Schick
Director, Applications Marketing
STSC Inc.
Rockville, MD

As developers of Statgraphics for STSC, we would like to correct a number of factual errors in that review.

The statement that printer support is equivalent to pressing Shift-Print Screen is not correct. Graphs may also be sent to Epson and IBM Graphics-compatible printers in three special modes: 640 by 200, 720 by 350, and 747 by 960, regardless of whether a graphics board is present. This is true of all versions beginning with Version 1.0. Graphs of such resolution have been used in many presentations.

The statement that the user has no control over scaling is also not correct. Using the Graphics Options procedure, the user has separate control over the vertical and horizontal sizes of all printed graphs and can print them in either landscape or portrait mode. Again, this is true of Versions 1.0 and later.

Version 2.0 allows the user more control over the text displayed on a graph, including the ability to change its size and orientation.

While we agree that better printer support is always desirable and are working to improve it, users cannot expect to get the same quality hard copy output from inexpensive dot-matrix printers that they can get from plotters or laser printers. For publication-quality output, some expense is necessary.

Neil W. Polhemus
Statistical Graphics Corp.
Princeton, NJ

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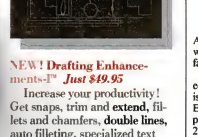

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to your SAS/PC review. After some years of being impressed with both *InfoWorld* and SAS, I find it incredible that this review is so misleading. I have seven problems with it.

SAS is a language or an environment, not a statistics package. As such, the comparisons you make are fundamentally erroneous.

Several times you state that SAS is for the "initiated," or professional. I could hardly agree more, yet you downgrade that product because it is complex enough to handle a professional's needs.

Your comments about corporate users staying with mainframe SAS may be true, but there are many research projects, both corporate and academic, which involve few enough observations to run on a micro. Indeed, oversampling is almost a disease of corporate statisticians.

In my opinion, the table on page 32 does not reflect the differences among the products. I compared SAS' Regression procedure with that of another package we own and that you reviewed. Not only did SAS have three more ways of automatically selecting models, it also provided three statistics, three information criteria, partial sums of squares, the ability to do weighted regression, and to test hypotheses about parameters, none of which were offered by the other product. In short, I identified 17 items that I have used that are available in SAS but not in its competitor. And that doesn't even count PROC GLM, which offers completely general linear modeling.

In summary, as you say, SAS is a "virtuoso" program, and I agree. But to play with concert quality takes practice. Moreover, you can't play organ concertos on a $500 chord organ and expect them to sound right.

SAS is not for everybody, but the program does fit a need for the professional by providing the power and complexity that is needed. You do both SAS and *InfoWorld* a disservice with this review.

L.H. Zincone Jr.
Chairman, Department of Business
East Carolina University
Greenville, NC

MACINTOSH HAS BEST STATISTICS

Your survey of statistics packages was very interesting, too bad it was heavily biased toward MS-DOS machines. Some of the most innovative, interactive, and accurate statistical programs I have seen and used run on the Macintosh. Two of the most impressive Macintosh-style statistical programs are produced by Brainpower in their Statview series. Nothing running on an MS-DOS machine can come close to their interactive functionality, graphics, and data handling capabilities.

I have had a chance to use the Macintosh version of Systat 3.0 for some time now, and it seems to be the most powerful statistical system on any microcomputer. Its multivariate general linear hypothesis and nonlinear modeling modules are without equal. And, as you alluded to in the article, the 3.0 Macintosh version does make an attempt to be Macintoshlike. Unfortunately, it fails miserably in one very important aspect. Systat has chosen to implement the same graphics in the Macintosh version as on other machines: archaic line printer graphics! Screen graphics are printed using a modified version of the Monaco 9 font. The company made no effort to take advantage of the spectacular graphics capabilities of the Macintosh.

This is an excellent example of a sophisticated program, on a great machine, that is horribly crippled by a printing bottleneck. When Systat can match sophisticated graphics with its sophisticated statistics, then I will be able to suggest its purchase to any statistically oriented Macintosh user. Until then, I would say hold off:

Arthur B. Busbey
Assistant Professor Geology
Texas Christian University
Fort Worth, TX

CONSIDER SURVEY PROGRAMS

While I agree that SPSS and the others are excellent for sophisticated statistics users, I think you left out an important subgroup: survey packages. Shamrock Press publishes People Facts: The Opinion Processor, a product originated in 1983.

While a survey package has a few of the features found in a straight stats program, it is vastly different than a true statistical software package. Its sole purpose is to help you create a survey questionnaire, process the data, and print a report of the results. Many people buy a stats package with the hope that they can later "convert" it into a survey program. They soon realize their program is often too complex or cumbersome to use effectively to create and process survey data.

Our People Facts program not only allows you to create a survey questionnaire right from scratch, but it gives you all the statistical functions you need to tabulate reports based on your data. While other purely statistical software programs give you the numbers, they usually require advanced statistical knowledge to perform the program's tasks correctly.

As an example, an assistant in a doctor's office may use the program to create and process a survey questionnaire that asks patients to rate their level of care. A survey package fills this need; an expensive package usually requires major modifications to do this.

Steve Albrecht
Shamrock Press
San Diego

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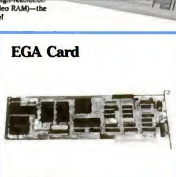

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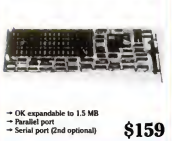

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Tech Talk

By Steve Gibson

Programs That 'Behave' Lend Themselves to Compatibility Successfully

Last week we explored the roots of software misbehavior. The old days of total system ownership, which encouraged such misbehavior, are forever gone. Today's modern software *must* assume coresidence with many other programs. It must therefore mind its manners.

Remember that well-behaved software always keeps its hands off the computer's hardware. If, for example, such software needs to send a string of characters to the system's display screen, it calls upon software functions that have been built into the computer to perform this service. It would *never* write the string directly into the display's memory itself. *Direct Screen Writing* is a classic and often repeated software faux pas.

All modern personal computers incorporate a core of hardware interface routines in read-only memory. The IBM PC refers to this as the BIOS ROM (for basic input/output system), and the Apple Macintosh has its software toolbox ROM. In each case, these serve the same purpose: They provide for a well-behaved interface between all software and the computer's hardware. They also allow software to use the system's hardware while *isolating* the software from the particulars of the computer.

This aspect of hardware/software isolation is key, since it allows the computer manufacturer the freedom of radically altering the computer's hardware without requiring the application software to be changed. The ROM routines would simply be modified to provide the same interface for the software as before. This is precisely what HP, DEC, and TI did when they introduced their first MS-DOS "PC compatibles." The disastrous result is now history. Very little existing software was able to run on their machines because almost none of the MS/PC-DOS application software was truly well-behaved. Rather than asking the BIOS to handle their input and output needs, software went zapping right to the heart of hardware — which was unlike the original IBM PC. The applications zapped themselves in the process.

Ben Rosen and his bright boys at Compaq Computer understood very early that misbehaving programs were the rule rather than the exception. Ben's friend Mitch Kapor over at Lotus had made that very clear with the misbehaving success of 1-2-3. So Compaq created a machine that not only had a fully compatible BIOS, but which also mimicked the original IBM PC hardware down to the tiniest detail. This hardware-level compatibility catered to the wealth of popular misbehaving software (like Lotus 1-2-3 and Sidekick) and was key to the early and continuing success of the Compaq computer. The term "100 percent compatible" has since arisen to characterize the current flock of hardware-level-compatible computers.

Strangely enough, designing software that behaves itself is generally much easier than designing software that misbehaves! The use of a machine's intrinsic ROM routines is quite simple and always requires far less knowledge of messy hardware details. So why do so few programs play by the rules?

The sad news is that they don't much need to. With the 100 percent compatibles ruling the market, a misbehaving program can arrogantly blame *you* for running it on a non-100 percent compatible MS-DOS machine! But more to the point, using a machine's ROM routines often results in unacceptably slow software performance. There's a "time overhead" incurred by going through this intermediate level of interfacing software. This is exactly why almost everyone largely ignores the standard BIOS in the IBM, preferring instead to zap right to the hardware.

This has always been fine in the past, but we're rapidly moving ahead. The future of MS-DOS standard computing lies with the likes of Microsoft Windows, Topview, Desqview, and GEM. These highly sophisticated environmental software systems only function well if all software running "beneath" them behaves itself well. Ideally, these systems operate by intercepting the well-behaved I/O requests made by programs and by constraining their input, output, and accesses to fall within screen windows. This "windowed" operation is made impossible when a program insists upon zapping its data right onto the screen, thus violating the rights of all the other programs.

Well-behaved programs will win out in the long run as the urge to multitask, and the power of our little machines, continues to grow and grow.

Steve Gibson is the developer and publisher of Flicker Free and president of Gibson Research Corp., in Irvine, California. The views expressed are his own.

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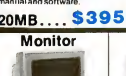

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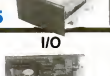

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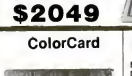

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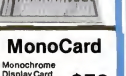

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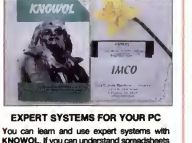

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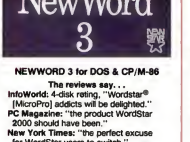

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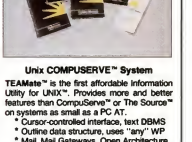

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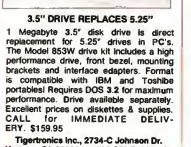

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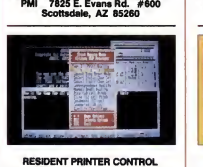

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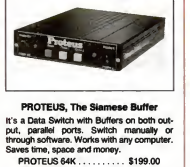

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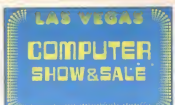

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#49	12/8	11/19
#50	12/15	11/26
#51	12/22	12/3
#52	12/29	12/10
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#3	1/19	12/23
#4	1/26	1/7
#5	2/2	1/14
#6	2/9	1/21
#7	2/16	1/28
#8	2/23	2/4
#9	3/2	2/11
#10	3/9	2/18
#11	3/16	2/25
#12	3/23	3/4
#13	3/30	3/11

Robert X. Cringely

Cringely Intelligence Agency Opens at Comdex

I thought I finally had it made last week when my boss came down to the basement to see me with a Compaq Deskpro 386 in tow. He set it up and told me what a wonderful box it was and did it with such a silver tongue that I nearly decided to ditch my Underwood without a proper burial. I was even civil to the guy for the next 10 minutes.

Turns out he's no gem after all. He's going to make me give the dingus away at Comdex. And listen to this: He's going to make me fly to Las Vegas to do it.

But what's tough for me could work out for you. When I'm not shooting craps, I'll be spending time at the *InfoWorld* booth taking tips from all comers. So make sure to pass by the Cringely Intelligence Agency and tell me the hottest industry gossip you know. We'll put your name in the running for the Deskpro 386. I'll be drawing the winner Friday, November 14.

LOTS OF ACTION. My giveaway won't be the only 386 action in Vegas at Comdex. From what I hear, you'll be hip deep in these things. The boys in the newsroom already outlined a bunch for you. But my sister Babs and I got busy last week and came up with a few you'll only hear about here.

AST will be in Sin City with a 386-based board that plugs into its new Premium/286 AT-compatible box. That'll be just one of 25 or 30 new products from AST at the show. And the company reportedly has at least one announcement a month in desktop publishing lined up for the next year.

Televideo's 386 machine will be in Las Vegas, too, Babs tells me. But don't expect to see it on a pedestal at Televideo's booth. You'll have to be in the know to get a glimpse of it.

And PC's Ltd. will show its 386 at the show. This one will have a basic 16-MHz clock speed switchable to speeds well above 20 MHz, feature a custom-designed motherboard, and sport a price tag of about $4,500. You'll be able to buy one the first quarter of next year, according to my sources in Texas.

ALMOST A SURE THING. My sources tell me Microsoft is 90 percent sure IBM will endorse Windows. What I hear is that IBM has assured Microsoft that while Topview will be compatible with Advanced DOS, no significant new features will be added and IBM won't put any significant R&D money into Topview.

Meanwhile, Windows picked up another endorsement from Phoenix Technologies, which said it will develop Windows device drivers for peripheral makers. After the drivers have been written, Phoenix will issue a Microsoft certificate of Windows compatibility.

My sources also gave me a tidbit about the IBM 80386 entry: IBM's machine is going to outrun the Compaq Deskpro 386 by using a cache memory management scheme in its machine, not Compaq's static column RAM.

LASER WAGER. If you're looking for printers at Comdex, look up CIE Terminals. They'll bow a gussied-up version of the Lips 10 laserprinter, called the Lips 10 Plus. The Plus model will offer LaserJet Plus emulation, a 600,000-page life-span, and a monthly duty cycle of 15,000 pages. The new printer will come standard with 512K and offer optional expansion of up to 1.2 megabytes.

Rumors are also circulating that Atari is about to join the laser printer fray with an under-$1,000 entry that uses a Canon engine. But don't look for it at Comdex.

WIN SOME, LOSE SOME. I got a line from TI's technical guys who said I didn't have it quite right about the Nubus, the bus Apple's using in the Paris. So here's the straight dope: Multibus II and Nubus share some things in common, but they're not similar enough so that Multibus II cards can plug into the Nubus. For one thing, they're the wrong size. For another, they need some added logic to work right. TI has fixed it so some Multibus boards work with its Nubus machines, but that's it.

I'm also told there are two Nubus board sizes: the standard size TI is using, and a much smaller board that Apple convinced the IEEE P1196 committee, which oversees Nubus, to adopt.

Speaking of the Paris, developers are being promised final versions of the machine by mid-December, so they can start working on their software. Word is the DOS board for the box is being made by Phoenix Technologies, after some other folks turned Apple down when they asked them to do the work. The board will cost about $700 when it does come out, which may not be at the same time as the Paris, or even with an Apple label.

And Apple is doing some Macintosh file server software that works through AppleTalk. My sources said it's similar to Macserve by Infosphere, a product that allows a group of Macs to share the same hard disk. The Apple software will be transparent, run automatically, and will debut next March with the new Macs.

Just because you won't gamble on a trip to Comdex doesn't mean you can't steer me to a good bet. Slip me a line at my MCI box, CRINGE, or call the newsdesk at InfoWorld and ask for me.

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INFO WORLD The PC NEWS WEEKLY

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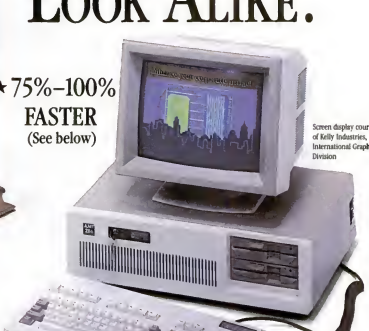

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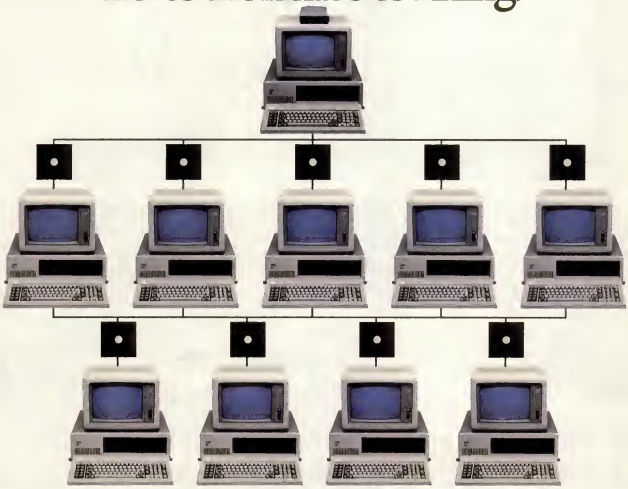

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